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Montana Outdoors

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JULY–AUGUST 2010

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***MONTANA OUTDOORS* MAGAZINE**
VOLUME 41, NUMBER 4
For address changes or other subscription information call
800-678-6668

Montana Outdoors (ISSN 0027-0016) is published bimonthly by Montana Fish, Wildlife & Parks. Subscription rates are $9 for one year, $16 for two years, and $22 for three years. (Please add $3 per year for Canadian subscriptions. All other foreign subscriptions, airmail only, are $35 for one year.) Individual copies and back issues cost $3.50 each (includes postage). Although *Montana Outdoors* is copyrighted, permission to reprint articles is available by writing our office or phoning us at (406) 495-3257. All correspondence should be addressed to: *Montana Outdoors*, Montana Fish, Wildlife & Parks, 930 West Custer Avenue, P. O. Box 200701, Helena, MT 59620-0701. E-mail us at montanaoutdoors@mt.gov. Our website address is fwp.mt.gov/mtoutdoors.
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Postmaster: Send address changes to *Montana Outdoors*, Montana Fish, Wildlife & Parks, P.O. Box 200701, Helena, MT 59620-0701. Preferred periodicals postage paid at Helena, MT 59620, and additional mailing offices.

Montana Outdoors

JULY–AUGUST 2010

FEATURES

8 10 Trails You Have To Try From rain-soaked cedar forests to sun-drenched prairies, these day hikes take you to some of the state's most scenic sites. *By Becky Lomax*

16 Keeping the Grass in Grasslands How Montanans are conserving the state's remaining native prairie. *By Scott McMillion*

24 Pretty Ugly Hating the beautiful hawkweed. *By Rick Bass*

26 Picking Up After Others Concerned citizens team up with FWP and other public agencies to clean trash from the Blackfoot, Bitterroot, and Clark Fork rivers. *By Pamela J. Podger*

30 Awaiting the Trumpeter's Return Over the past six years, 140 trumpeter swans have been reared and released in the Blackfoot Valley. Now the majestic birds face power lines, illegal shooting, and other dangers as they try to return home. *By Nick Gevock*

34 Why the Deer and the Antelope Play When wild animals goof off, they may be doing more than just having a good time. *By Sam Curtis*

38 Here It Is Small signs help hunters, other recreationists, and landowners by showing exactly where state and federal parcels begin and end. *By Tom Dickson*

DEPARTMENTS

2 LETTERS

3 OUR POINT OF VIEW Best of Both Worlds

3 NATURAL WONDERS

4 SNAPSHOT

6 OUTDOORS REPORT

41 OUTDOORS PORTRAIT Greater Short-horned Lizard

42 PARTING SHOT Which Route?

TOSSED AND FOUND See page 26 to learn why volunteers are finding more flip-flops, aluminum cans, and other trash in western Montana rivers. Photo by Linda Thompson.

FRONT COVER Can cattle grazing help the marbled godwit and other shoreland and upland prairie birds? See page 16. Photo by Donald M. Jones.

Floods follower

The article on Glacial Lake Missoula ("Following the Great Floods") in the March-April issue was the most interesting one you've printed in some time. (Maybe that's because I don't fish or hunt, but I do like hiking, cross-country skiing, and geology.) Last month we bought David Alt's *Glacial Lake Missoula and Its Humongous Floods* and did the tour suggested on the bottom of page 21 of your article, following the floods on into Washington.

Roger Breeding
Bozeman

A better solution?

In the short article in the March-April issue titled "Learn About Lions," which explains the need to identify the gender of treed mountain lions, you state that "reducing the harvest of adult females also decreases kitten mortality caused by orphaning." I've hunted since I was first of legal age to do so, and in all this time I have never understood the thrill of treeing a mountain lion with dogs and then shooting it like some fool hen. "Orphaning"? Why don't you call what happens to those kittens what it really is: death by starvation. A better solution than knowing the gender of adult lions would be to prohibit lion "hunting" altogether.

John Andrew
Helena

Praiseworthy

FWP director Joe Maurier's "Into the Heart of It" in the May-June issue of *Montana Outdoors* was a succinct essay worthy of praise. I grew up in Lewistown and now live in San Jose, California. My wife and I make fishing trips to Montana every other year, generally float trips on the major

rivers. However, I have had many experiences like those described in the essay and the article on fishing small streams.

Jim Isaacson
San Jose, CA

Myths about reservation game laws

As a former Flathead Reservation resident and a descendent of a tribal member, I am perplexed that *Montana Outdoors* applauds conservation efforts of the Confederated Salish and Kootenai Tribes (CSKT) in the March-April 2010 issue ["Conserving Wildlife (and Culture) on the Flathead Indian Reservation"]. I often witnessed numerous white-tailed deer hung from clothing lines to feed dogs, tribal members harvesting moose in the Big Hole area without permits, and smoked federally protected bull trout at tribal member functions.

I'm not aware that the CSKT has ever instituted any licensing or bag limits for game found on the reservation or in "traditional" hunting areas. Until that time, the State of Montana and your magazine should withhold your praise for the Flathead Reservation's conservation efforts.

Tyler Waylett
Fort Worth, TX

Dale Becker, manager of the CSKT wildlife program, responds: *Tribal fish, wildlife, and recreation regulations deal specifically with the issues in each of Mr. Waylett's examples. If he witnessed any of the situations he refers to in his letter and was concerned about them, he should have reported the incidents to the Tribal Fish and Wildlife Conservation Program for investigation. As for his misconceptions regarding issuance of permits for game or limits upon taking game on the Flathead Reservation or in traditional areas, he is mistaken. Evidently he has not looked into tribal regulations on these issues or the tribal resource management processes involved with them. As for bull trout, it is legal under state, federal, and tribal law for an individual to harvest a bull trout under special experimental fishing regulations on several waters in northwestern Montana.*

Essential subscription

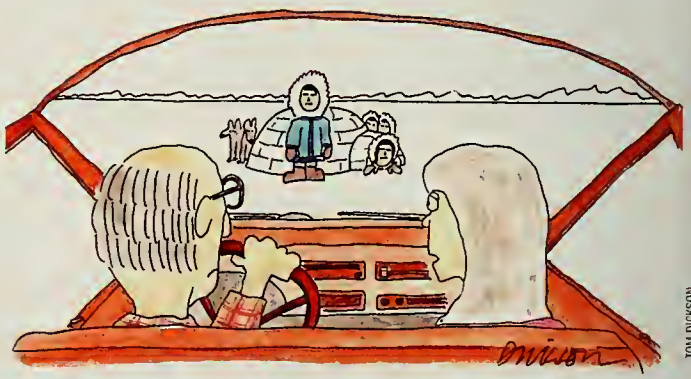
I was departing the Bozeman airport and picked up my first copy of your magazine. I subscribe to many "hook and bullet" magazines, but I enjoy the ones that state conservation agencies issue the most. Yours is a prime example of why. The articles are concise and informative. The photography is beautifully done, and the overall layout of the magazine is superb. I now see that I will have to add *Montana Outdoors* to my subscription list.

Michael L. Schnipper
Oxford, OH

Like any other animal

The return of the wolf was the best thing that happened. There were too many elk. They were overbrowsing and the land was deteriorating. There are now more aspen and willow groves, which is why beavers have returned and, because of their dams, waterfowl and other birds. An array of wildlife has benefitted from the return of the wolf. Now people must learn to coexist with the wolf like any other wild animal.

Carol Pesock
Zion Grove, PA



TOM DICKSON

"Okay, so now will you consider stopping and asking for directions?"

BEST OF BOTH WORLDS

This past May, a wind farm developer came into FWP headquarters in Helena looking for information. He was planning to install wind turbines near Martinsdale and wanted to learn the locations of crucial fish and wildlife habitat he should avoid disturbing. We showed him how to find the information in our Crucial Areas Planning System, or CAPS. The system is composed of detailed computer-generated maps that identify the state's most highly valued recreation areas and fish and wildlife habitat.

This Internet-based mapping tool allows developers, counties, and public agencies to assess the conservation value of particular locations when they begin planning power lines, residential housing, and other projects. (They could do this previously, by consulting with FWP staff—which we still recommend—but it's much easier now.) If they know about a bull trout spawning tributary or sage-grouse lek beforehand, they can either proceed in ways that don't harm the habitat or decide the required mitigation expenses are not worth the effort. It's their choice; CAPS is nonregulatory. The important thing is that they have the fish and wildlife data up front, before proceeding so far into a project that revision becomes costly and contentious.

Montana needs economic development. But it also needs elk winter range, trout streams, and state parks to maintain its valuable hunting, fishing, and other outdoor tourism industries. It's not a matter of choosing between an energy transmission line or a pronghorn fawning ground. Montana requires both. That's a main reason our department created CAPS.

It's their choice whether to proceed or not; CAPS is nonregulatory.

The system contains data on vital fish and wildlife areas from 100 years of reports, surveys, and maps, much of it having sat for years in file cabinets and desk drawers. It also contains maps of projected residential and energy development, such as coal-bed methane. And it contains FWP biologists' assessments of risks to crucial areas—like from climate change or urban sprawl—and their suggestions for preventing degradation or disturbance to intact, unfragmented sites.

With CAPS, we can more readily predict locations of likely conflicts and take steps to reduce them. For instance, if we see that a proposed highway crosses a historical mule deer migration route, we can work with state and federal transportation departments to alleviate the problem, such as by installing wildlife passageways or re-routing the road. The system also helps focus future FWP acquisitions and conservation easements on areas with the highest value to fish and wildlife.

CAPS is dynamic: The maps reflect what we know now, and FWP will update them as we obtain new information. Soon we'll be adding key wildlife migration routes as well as essential hunting and fishing sites identified by dozens of Montana sportsmen's groups.

Montana has long been a national leader in wildlife conservation,

STOCKXCHNG.COM

a tradition that continues. CAPS is the first "decision support system" released in the West. Other states are working on similar projects as part of an initiative agreed upon two years ago by the Western Governors' Association. Like Montana, they want to see economic growth, but not to the extent that it degrades valuable fish and wildlife systems.

As for the wind farm developer who stopped by recently, it's anyone's guess what will become of his proposal. But one thing's for sure: If his project goes through, he knows where to site his turbines to do the least possible harm to crucial terrestrial and aquatic habitat in the Martinsdale area.

They say you can't have your cake and eat it, too. But if CAPS works as planned, maybe Montanans can have the best of both worlds by fostering healthy economic development in ways that protect the state's equally important fish and wildlife resources.

—Joe Maurier, *Director, Montana Fish, Wildlife & Parks*

To use the new mapping system or learn more about it, visit fwp.mt.gov and search for "CAPS."

NATURAL WONDERS

ILLUSTRATION BY PETER GROSSHAUSER

Q. *Do you have to wear a life jacket while in a boat, or just have it in the boat?*

A. The law requires that a boat must carry at least one life vest or other PFD (personal flotation device) for each person in the boat. Children under age 12 must wear a life vest. Everyone else, including adults, is advised to wear one—especially when water temperatures are cold and the threat of hypothermia from an accidental dunking increases.

While visiting a friend in Glen in late July, East Glacier photographer Tony Bynum mentioned he was looking for deer to photograph. "She's a hunter, so she sent me to some sage flats south of town near the Beaverhead River," he says. Expecting to see mule deer, Bynum was surprised to see a dozen or so whitetails. "I've never seen a whitetail in sage before, but when I looked around it made sense. The sage was real thick and the river was only about 150 yards away, so they had plenty of thick cover to hide in. There were some huge bucks in there, but this smaller buck was the only one I could get close enough to for a good shot." ■

INSPECT. CLEAN. DRY.
STOP AQUATIC HITCHHIKERS!
A message brought to you in cooperation by Montana Fish, Wildlife & Parks and Montana Department of Agriculture

NO MISSING IT

Billboards across Montana are part of a new statewide campaign to stop the spread of aquatic invasive species.

PHOTO ILLUSTRATION BY LUKE DURAN

This summer, billboards, bumper stickers, radio PSAs, and other media will urge anglers and others to take three simple steps to reduce the spread of water, mud, and vegetation carrying aquatic invasive species. A new campaign headed by FWP and the Montana Department of Agriculture is raising public awareness about the threat of VHS virus, zebra mussels, Asian carp, and other nuisance species. The organisms take over lake and river ecosystems, kill native fish, ruin recreational and industrial equipment, and clog irrigation canals and pipes.

"The main message is that these three easy steps make protecting Montana waters easy," says Eileen Ryce, FWP statewide aquatic nuisance species coordinator. "First, inspect your boat, boots, and other fishing gear; second, clean off all mud, water, and vegetation; and, finally, dry it thoroughly to kill any remaining organisms."

Ryce adds that the "Inspect. Clean. Dry." message is also available through TV news reports, newspaper ads, signs at boat ramps, direct mail to boat owners, and even teachers' guides for students. "Montana is taking this threat seriously, and we're doing all we can to get the word out to everyone," she says.

Fly-fishing newby lands record pike with $21 outfit

A top-of-the line fly rod and reel combination can run over $1,000, and fly-fishing lessons can cost up to $450 a day—with no guarantee of catching fish. But only five weeks after novice fly angler Ivan Keeney spent just $21 on his outfit and taught himself to cast, he landed a North American record northern pike. The 28-year-old construction worker boated the 47-inch fish, which weighed 29.7 pounds, on April 30 at Smith Lake near Kalispell.

Northern pike reached 400-acre Smith Lake in the late 1990s after washing in from upstream waters where they had been illegally introduced years before. Pike are native to Montana only in the Saskatchewan River drainage on the east side of Glacier National Park in waters that flow northeast to Hudson Bay. Northerns are popular in Alaska and Canada for their large size, furious fight, and tasty fillets. Yet when stocked into new waters, the voracious predators can wipe out trout and other existing fish populations.

Biologists estimate that Keeney's nearly 4-foot-long pike was roughly 12 years old. The angler, who was fishing from a canoe without a net, says he landed the massive pike by wrapping his jacket around his hand and arm and reaching into the fish's gaping tooth-lined mouth and hauling it aboard.

Larger pike have been caught before. The all-tackle state record is a 37.5-pounder from Tongue River Reservoir in 1972, and the world record is a 55-pound monster landed in Germany. But no one has ever caught a larger pike in North America on a fly rod with a 15-pound-test tippet. That makes Keeney's fish a North American tippet-class record as verified by the Freshwater Fishing Hall of Fame in Hayward, Wisconsin.

Ivan Keeney at the taxidermist with his fly rod tippet class record northern pike.

IVAN KEENEY

Hi-Line offers museum-quality wildlife showcase

With a population of just 1,274, Chinook is usually a sleepy little prairie town. But a new wildlife museum is creating plenty of excitement in this modest municipality, located 20 miles east of Havre.

The Blaine County Wildlife

Museum, which opened in 2009, contains quality mounts and dioramas like those in natural history centers in Denver, the Twin Cities, and other large metropolitan areas. A few examples: The gadwall rising from a pond in the wetland exhibit looks real enough to quack. The Peaks to Plains diorama contains dozens of lifelike mounts, including a grand 5 x 5 whitetail buck, pronghorns running across a prairie, and a mountain lion so lifelike it startles visitors. The buffalo jump exhibit shows just how dangerous this way of harvesting protein was for Indian hunters—not to mention their bison prey.

Deb Davies, a museum board member, says the facility contains 230 animal mounts. A local all-volunteer board developed the exhibit concepts and raised funds to hire Minnesota-based Acorn Exhibits, Inc. to design and build the displays. The company's owners have worked for the Denver Museum of Natural History, International Wildlife Museum in Tucson, Arizona, and the Science Museum of Minnesota in St. Paul. "We wanted this to be a top-notch museum, so our board hired a top-notch firm to do the work," Davies says.

The museum is a must-stop for anyone traveling along U.S. Highway 2 this summer. It's open from Memorial Day through Labor Day, Monday through Saturday, 10 a.m. to 5 p.m. Admission is $5 for adults and $3 for students.

For more information, call the museum at (406) 357-3102 or visit bcwildlifemuseum.com.

Part of the Peaks to Plains diorama.

BLAINE COUNTY WILDLIFE MUSEUM

53 years of helping kids hunt safely

Legendary Montana hunter education instructor Pat McVay observed his 90th birthday on March 14 unlike most nonagenarians: by certifying a new class of hunter education graduates. The 12 students helped McVay celebrate his birthday at the end of the weeklong training session he holds at his home east of Kalispell.

It's a course McVay has been teaching for more than half a century, reaching roughly 1,500 youngsters.

"One thing I feel good about is that I've never missed a year teaching, and many times I taught two classes per year," he says.

McVay taught Montana's first hunter education course in 1957. He was also the first to introduce the firing of shotguns and rifles as part of the students' education. But McVay's greatest contribution was helping to create a law making it mandatory for hunters under age 18 to graduate from a hunter education course before they could buy a big game license.

In this 1957 photo, instructor Pat McVay (center, cowboy hat) poses with the first class of students to be certified under Montana's new hunter safety law. Below: McVay (back, center) is flanked by other hunter education instructors and his 2010 spring class on their graduation day, also his 90th birthday, this past March.

Concerned about the growing number of hunting accidents in Montana and elsewhere in the United States, McVay worked with *Hungry Horse News* editor and publisher Mel Ruder to urge the state legislature to establish a hunter safety program. Their lobbying worked. In January 1957, says McVay, Ruder called him to say the legislature had passed a hunter safety bill. At the time, McVay had been teaching a safety course set up by the National Rifle Association. Three days after Ruder's phone call, McVay sent paperwork to what was then called the Montana Fish and Game Department asking that his students in the NRA course be certified under the new law.

Much to his surprise, says McVay, the agency returned the paperwork, explaining that the state was not ready to certify students. McVay mailed the documentation back, writing that the agency should keep it until the process was worked out. Three months later, his students received their certificates.

In 1962, McVay moved his class from an indoor rifle range in Hungry Horse to Sunrift Hall near Deer Park. The class had to move again soon after, he says, when a skunk got into the classroom. For the past 37 years, he has taught the hunter ed course in the basement of his home along the Swan Mountain front. The classroom is filled with McVay's wide assortment of animal mounts, pelts, and firearms collected over the years. "I enjoy it," he says of his five decades of safety instruction. "I think I'm doing some good, and I get a heckuva kick out of the kids.

"One of the most rewarding things to me is when a kid I've had in class comes up to me and gives me a photo of a first deer or other game animal," McVay adds. "I get a second kick out of that."

—John Fraley, FWP Regional Information and Education Program Manager, Kalispell

10 TRAILS YOU HAVE TO TRY

From rain-soaked cedar forests to sun-drenched prairies, these day hikes take you to some of the state's most scenic places. BY BECKY LOMAX

WORTH THE (EASY) CLIMB Enjoying the view from the summit of Mount Aeneas, in the Jewel Basin Hiking Area east of Kalispell. Crater Lake is visible in the distance.

LAWRENCE STATE

Montana is world famous for its hiking trails, so there's definitely no shortage of options. But if I were limited to only ten trails and wanted to take in the widest possible diversity of Montana's landscape—from glaciers to grasslands—it would be the hikes listed here. I've hiked most of them and consulted experts on the rest. These day trips are for hikers of average ability and experience, but they can be shortened or extended for those with less or more fortitude. See you out there.

As with any day trip outdoors, call ahead to be sure the trail is open (snowpack closes many high-elevation routes well into July) and to learn of bear or fire warnings. Always bring water, lunch or other sustenance, and rain gear.

BACKPACK BY ISTOCKPHOTO.COM

Mount Aeneas Loop

- Distance: 5.9-mile loop
- Elevation gain: 1,811 feet
- Directions: From Kalispell, take U.S. Highway 93 south to Montana Highway 82 east to Echo Lake Road. Drive 3 miles north and turn right onto Jewel Basin Road 5392 for 7 steep, narrow miles to the Camp Misery parking lot.
- Contact: Flathead National Forest, Swan Lake Ranger District, (406) 837-7500, fs.fed.us/r1/flathead.

CRAIG HAMET

1. MOUNT AENEAS LOOP

Mount Aeneas, in the Swan Mountains, is one of the most accessible summits in Montana. The 5.9-mile loop trail tops out at 7,528 feet, yielding big views for little work. The peak overlooks Jewel Basin, a 15,349-acre hiker-only area cradling 27 sparkling lakes, and its summit panorama includes Flathead Lake, Glacier National Park, and the Bob Marshall Wilderness. Don't expect solitude: An average of 100 people depart from the Camp Misery trailheads daily.

The route combines Trails 717, 392, 68, and 8, beginning up a wide roadbed to a four-way junction. After you climb multiple switchbacks lined with huckleberry bushes, watch for mountain goats as the trail traverses an arête (thin rock ridge) to Mount Aeneas. From the summit, the trail plummets into the Picnic Lakes Basin before climbing through a saddle to drop back to Camp Misery. ■

- **Distance:** 8-mile round trip
- **Elevation gain:** 1,500 feet
- **Directions:** Drive 20 miles north of Helena on I-15 to Exit 209 and then east on Gates of the Mountains Road for 2.7 miles to Gates of the Mountains Marina—(406) 458-5241, gatesofthemountains.com) to launch your boat or catch a boat tour 4 miles down the Missouri River to Meriwether Picnic Area.
- **Contact:** Helena National Forest, (406) 449-5490, fs.fed.us/r1/Helena.

2. MANN GULCH

Steeped in the history of Lewis and Clark on the Missouri River, Mann Gulch is also hallowed ground for anyone who has studied or fought wildland fires. In August 1949, lightning ignited a fire there that burned 3,000 acres in less than 15 minutes. The blaze killed 13 smokejumpers trapped in the gulch. Chronicled in Norman Maclean's gripping *Young Men and Fire*, the tragedy launched modern fire science and new tactics for surviving wildland fires. Crosses mark where the smokejumpers died.

From Meriwether Picnic Area (reachable most easily by boat), follow the Vista Point Trail north, climbing the switchbacks past the Vista Point turnoff. The forested trail ascends the ridge toward the head of Mann Gulch. Reaching the firefighter memorials requires a 20-minute traverse on a faint grassy side trail to the north slope of the gulch overlooking the Missouri. A steep, well-worn trail loops past the markers indicating where each firefighter fell. ■

BECKY LOMAX

Ross Creek Cedars

- **Distance:** 1-mile loop
- **Elevation gain:** Flat
- **Directions:** From Libby, drive U.S. Highway 2 west and turn south onto Montana Highway 56. Past Bull Lake, turn west onto Forest Road 398 for 1 mile and then left up the narrow road 3 miles to the trailhead.
- **Contact:** Kootenai National Forest, (406) 293-6211, fs.fed.us/r1/kootenai.

JOHN REDDY

3. ROSS CREEK CEDARS

Here's a great hike for grandparents, grandkids, and everyone in between. The Cabinet Mountains conceal a grove of ancient western red cedars—some 8 feet in diameter and more than 175 feet tall. Protected in a 100-acre scenic area since 1960, the ancient Ross Creek cedars have survived floods, fires, and insects. Several of the towering giants in this temperate rainforest were saplings when Columbus arrived in the New World.

The flat 1-mile trail loops through the old-growth forest below a canopy so thick it shades the damp forest floor even on sunny days. Along the trail, hikers discover cedar castles hollowed out by fire and downed cedars regenerating new growth. The dense overhead canopy—home to pine martens—blocks so much light that only shade-tolerant species such as lush ferns and dainty white foam flowers can grow on the duff floor. Next to the trail runs Ross Creek, where hikers might see a mink or an American dipper. ■

Becky Lomax, a writer in Whitefish, guided in Glacier National Park for many years.

- Distance: 3 to 8 miles
- Elevation gain: varies
- Directions: From Glasgow, drive 20 miles west on U.S. Highway 2 and turn north onto Britsch Road for 15 miles. The gravel-then-dirt road, bordering the southern boundary of the Bitter Creek Wilderness Study Area, becomes impassable gumbo when wet.
- Contact: Bureau of Land Management, Glasgow Field Office, (406) 228-3750, blm.gov/mt/st/en/fo/glasgow_field_office.html.

4. BITTER CREEK

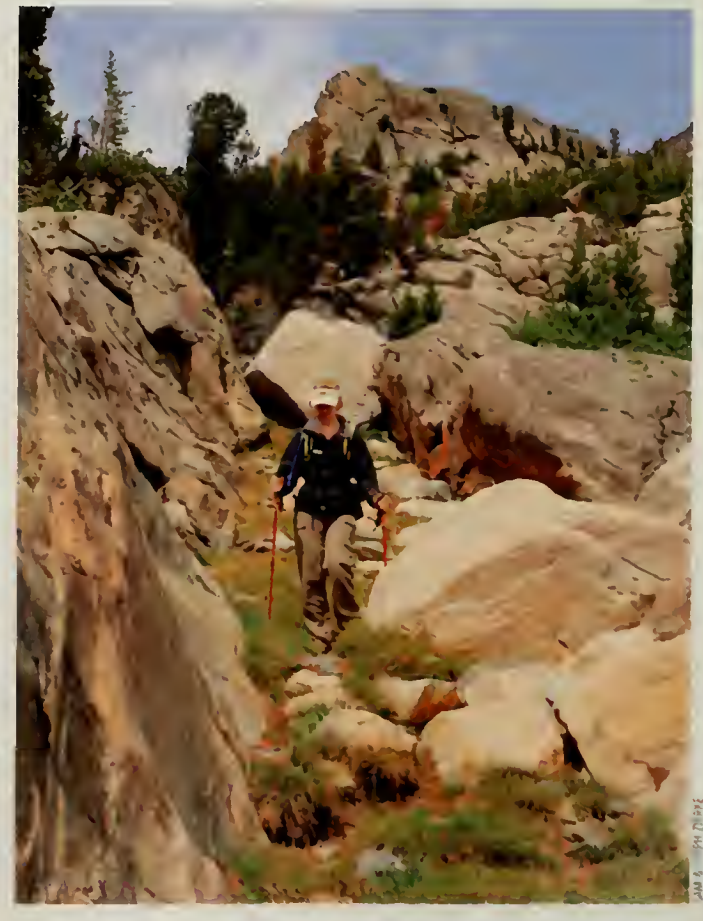
CHUCK HOLT

Tucked in northeastern Montana, the 59,660-acre Bitter Creek Wilderness Study Area and surrounding Bureau of Land Management (BLM), state, and private lands harbor vanishing prairie that once defined the northern Great Plains. This prairie, along with Canada's Grasslands National Park across the border, forms one of the largest intact grasslands left in North America. "Not only did it escape the plow, but you can hike all day and not see another person," says John Carlson, BLM biologist in Glasgow.

Because Bitter Creek lacks formal trails, hikers wander through the vast, rolling semiarid grasslands, broken by glaciated badlands and dotted with tipi rings. Boot- to knee-high native grasses, fading from green to gold during summer, create a mosaic of vegetation that sustains chestnut-collared longspurs, Sprague's pipits, sage-grouse, long-billed curlews, and other prairie birds. (The Audubon Society recognizes Bitter Creek as a Globally Important Bird Area.) Hikers might also spot pronghorn and, if especially lucky, the seldom-seen swift fox. ■

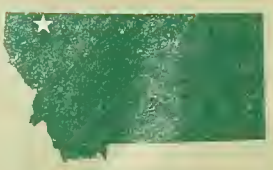
- Distance: 3.8-mile round trip
- Elevation gain: 1,822 feet
- Directions: From Red Lodge, drive 10 miles southwest on U.S. Highway 212. Turn right onto Rock Creek Road for 8.5 miles, veering left at the junction after the bridge, where the pavement turns to gravel. The road then gets rockier. The trailhead is in Wyoming.
- Contact: Custer National Forest, Beartooth Ranger District, (406) 446-2103, fs.fed.us/r1/custer.

5. GLACIER LAKE



With its high altitude, trout fishing, and rugged subalpine environment, Glacier Lake epitomizes the Beartooths—the state's highest mountain range. But unlike other Absaroka-Beartooth Wilderness lakes, reachable only after hours of hiking, Glacier Lake requires only a short—though steep—climb. The lake, at 9,706 feet, between the Hellroaring and Beartooth plateaus, sits at the head of Rock Creek Valley, a testament to the glaciers that once carved through the 3.2-billion-year-old gray and pink rock—the oldest in Montana.

From the trailhead at the road's terminus in Wyoming, the steep route ascends into Montana and crosses Moon Creek on a log bridge at 0.5 mile. Stay on the main westward path as it switchbacks up and over a ridge—it's a steep climb at high altitude, so pace yourself—before dropping to the lake. Because the lake's southern tip sits in Wyoming, anglers with Montana fishing licenses may fish only on the northern half. ■



- **Distance:** 7.8- to 11- mile round trip
- **Elevation gain:** 1,600 feet
- **Directions:** From St. Mary, take U.S. Highway 89 north to Babb and turn west for 12 miles to trailheads at Many Glacier Hotel or the Swiftcurrent Picnic Area. For the shortest route, take the tour boat from Many Glacier Hotel to the upper Lake Josephine boat bock. Book a ride at (406) 257-2426 or glacierparkboats.com.
- **Contact:** Glacier National Park, (406) 888-7800, nps.gov/glac.

BERT GILDART

6. GRINNELL GLACIER

Glacier National Park's namesake glaciers may be mostly puddles by 2020, according to U.S. Geological Survey ecologists. That's ten years earlier than predicted just a few years ago, and all the more reason to hike to Grinnell Glacier, the most accessible one in the park.

Most of the trail's elevation gain comes during one 2-mile stretch. Hikers can use the tour boat from Many Glacier Hotel to chop mileage off one or both ways, though there's no avoiding the climb. From the hotel or the Swiftcurrent Picnic Area, catch the trail that circles Swiftcurrent Lake to the west-shore boat dock. Hike over the hill and traverse west along Lake Josephine's north shore, diverting at signed junctions toward Grinnell Glacier. The trail tiptoes along multicolored cliffs, stair-steps under a waterfall, and skips through pink spirea where grizzly bears sometimes feed. Trudge up the moraine to see the glacier and its ice-filled lake. Make your way through the maze of paths crossing the bedrock to the shore, but stay off the ice, which harbors hidden crevasses. ■

Hyalite Creek and Lake

- **Distance:** 2.4- to 11-mile round trip
- **Elevation gain:** 1,800 feet
- **Directions:** From Main Street in Bozeman, take 19th Avenue south to Hyalite Canyon Road. Turn left, climbing past Hyalite Reservoir. At the fork, veer right toward Grotto Falls to the parking lot.
- **Contact:** Gallatin National Forest, Bozeman Ranger District, (406) 522-2520, fs.fed.us/r1/gallatin.

TONY DURAN

7. HYALITE CREEK AND LAKE

Hyalite Creek plunges over 11 waterfalls on its route from the Gallatin Crest to Hyalite Reservoir. The popular trail, which begins south of the reservoir and follows the creek upstream past the waterfalls toward its source at Hyalite Lake, attracts so many people that on Fridays and Saturdays from July 16 to September 4 the U.S. Forest Service restricts use to only hikers and horseback riders (motorbikes and mountain bikes are allowed Sundays through Thursdays). The area's geologic features are named for the hyalite opal found around the lake.

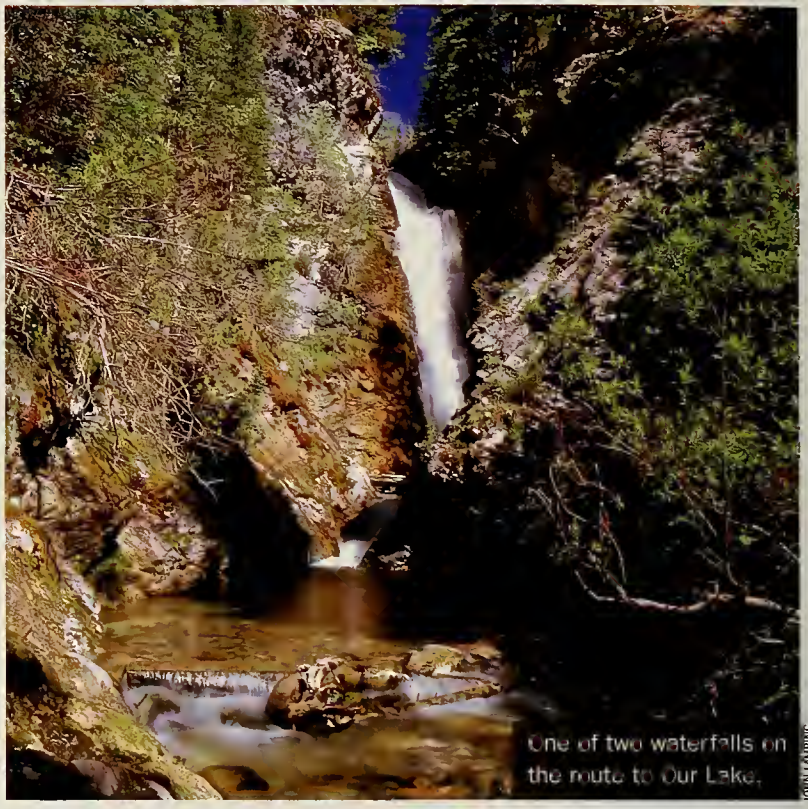
From the parking lot, Hyalite Creek Trail 427 begins with a 1.2-mile wheelchair-accessible route to Grotto Falls. The trail parallels the creek through a canyon pinched by cliffs. Drop off the main trail onto spurs to reach the waterfalls, or fish the creek for trout. The trail eventually reaches sparkling Hyalite Lake. Strong hikers can continue on to the Gallatin Crest Trail or scramble up Hyalite Peak. ■

JASON SAVAGE

Palisades Falls, on the Hyalite Creek Trail south of Bozeman

- **Distance:** 5-mile round trip
- **Elevation gain:** 1,506 feet
- **Directions:** From Choteau, drive 4.4 miles north on U.S. Highway 89 and turn west onto Teton River Road 144 for 16.5 miles. Turn south onto South Fork Teton Road. After crossing the Teton River, turn right onto gravel Forest Road 109 for 10 miles.
- **Contact:** Lewis and Clark National Forest, (406) 466-5341, fs.fed.us/r1/lewisclark.

8. OUR LAKE



One of two waterfalls on the route to Our Lake.

JORN LAMBING

Located on the edge of the Bob Marshall Wilderness, this is one of the few alpine lakes along the Rocky Mountain Front accessible in a day's hike. Our Lake sits at 7,295 feet in an ice-scoured alpine tundra basin surrounded by scraggy subalpine firs. In late July, meadows fill with wildflowers, while mountain goats traverse cliffs above the lake.

From the Headquarters Creek Trailhead, the route follows the heavily used pack trail leading into the Bob Marshall Wilderness for 0.4 mile. At the junction, veer right onto Trail 184 for the forested climb up numerous switchbacks. Viewpoints along the way take in Rocky Mountain Peak (the highest in the Bob Marshall Wilderness), and hikers will also see two waterfalls along the trail before reaching the lake. Anglers can fish Our Lake for westslope and Yellowstone cutthroat trout. Hikers with more time and stamina can climb to the west saddle for views of the famed Chinese Wall. ■

Blodgett Canyon

- **Distance:** 2.8-mile round trip
- **Elevation gain:** 400 feet
- **Directions:** From Hamilton, drive north on U.S. Highway 93 across the Bitterroot River. Turn west onto Bowman Road for 0.7 mile and swing left onto Richetts Road for 2 miles. Continue onto Blodgett Camp Road for 2.5 miles until the pavement turns to gravel. Turn west onto Canyon Creek Road for 3 miles to the trailhead.
- **Contact:** Bitterroot National Forest, (406) 363-7100, fs.fed.us/r1/bitterroot.

NELSON KENTER

9. BLODGETT CANYON OVERLOOK

Blodgett Canyon is a geological wonder featuring dramatic spires and sheer 500-foot cliffs with vertical walls that lure rock climbers. The canyon, swooping more than 2,000 feet from the creek at the base to the summits, was carved into a deep U-shape trough by ice bulldozing through slabs of gray granite. The 12-mile-long canyon reaches into the Selway-Bitterroot Wilderness.

There are two main trails. The lower one covers the canyon floor, while the overlook trail offers even more spectacular views from a high ridge. From Canyon Creek Trailhead, take the signed path heading east through large boulders toward the overlook. Built after a fire in 2000, the trail switches back and forth up through a lush green hillside of lupine and arrowleaf balsamroot. Interpretive stations explain the cycle of fire, and benches offer scenic, tranquil rest spots. Explore multiple viewpoints at the overlook, but be careful near the steep drop-offs. ■

The ice caves make a cool day hike destination in midsummer.

- **Distance:** 9-mile round trip
- **Elevation gain:** 2,200 feet
- **Directions:** From Lewistown, drive west on Montana Highway 200 for 8 miles, then turn south onto Crystal Lake Road 275 for 22 miles, turning at signed junctions to Crystal Lake.
- **Contact:** Lewis and Clark National Forest, Judith Ranger District, (406) 566-2292, fs.fed.us/r1/lewisclark.

10. ICE CAVES

Crystal Lake, past the ice caves in the Big Snowy Mountains near Lewistown.

Located in the distinctive island range of the Big Snowy Mountains, the Ice Caves Trail combines expansive views with unique geology. "You can almost see Wyoming and Canada from the top," says Dave Byerly, leader of the Montana Wilderness Association's annual hike to the caves. The 400-million-year-old white limestone contains fossils of ancient sea creatures as well as caves that fill with ice that stays well into September. Water seeping into one 100-foot-wide cave freezes in columns or spreads across the floor to make the surface slick as an ice rink.

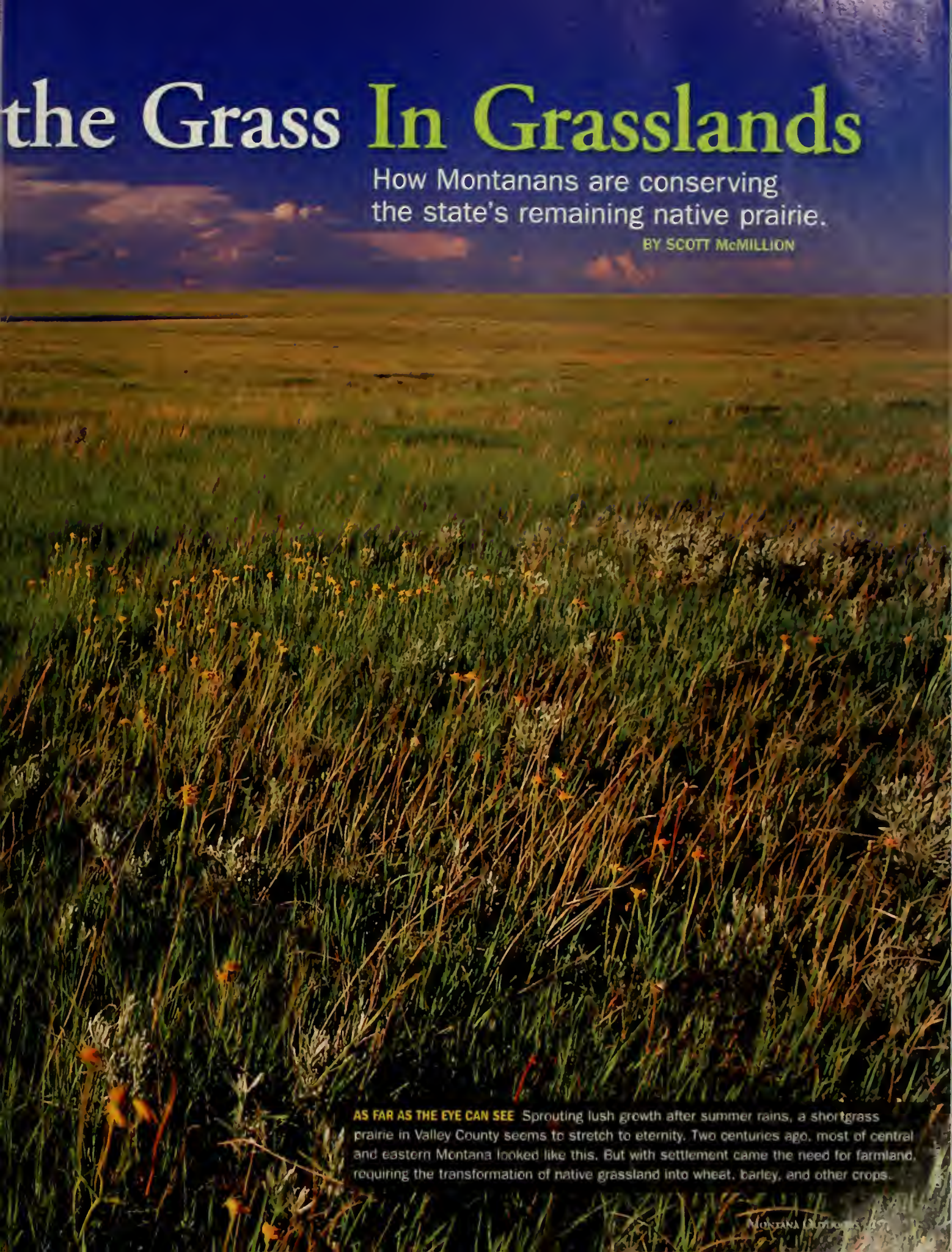
From the Crystal Lake Trailhead, the route follows Trail 493 through old-growth conifers before pitching into steep switchbacks up to the ridge. Turn east onto Trail 490, following cairns and signs for 1 mile across the open ridge, looking out for sinkholes. A spur trail leads to two entrances into the caves. Strong hikers can extend the route into a 12-mile loop that picks up at Grandview Point for a view of Crystal Lake. ■

Keeping

the Grass In Grasslands

How Montanans are conserving the state's remaining native prairie.

BY SCOTT McMILLION



AS FAR AS THE EYE CAN SEE Sprouting lush growth after summer rains, a shortgrass prairie in Valley County seems to stretch to eternity. Two centuries ago, most of central and eastern Montana looked like this. But with settlement came the need for farmland, requiring the transformation of native grassland into wheat, barley, and other crops.

"When done right, ranching can sustain prairie and wildlife diversity."

For something so vast, Montana's intact prairie often goes overlooked. Too many people traveling the steppes see only long, empty highway, put the pedal down, and hurry off to somewhere with more trees. "The grasslands were not considered scenery by the descendants of the European tree culture," writes Richard Manning in his sweeping study of the prairie, *Grassland*.

People tearing along the asphalt don't know what they're missing. There's a lot going on in a native prairie, but it takes a little time to soak it up. You've got to stop the car and get out. Climb a little knob and have a look around. Think about distance, about crossing this country on foot or horseback, the way people used to do it.

The first thing that hits you is the size, an immensity that overwhelms even in a modern vehicle going 70 mph. But the native prairie is a lot smaller than it used to be, even in Montana, home to some of the nation's largest tracts. And it continues to shrivel, suffering what biologists call "the death of a thousand cuts." That's because the only thing that can put a prairie down for good is the plow, one of mankind's oldest tools and arguably the most useful. Without the plow, the world would be a hungrier place and Montana would be unrecognizable. Farming is a major industry in this state, creating thousands of jobs and supporting communities—people and schools and businesses—from Eureka to Sidney.

There's no denying that cultivation makes it a lot easier to fill your plate. But that does not mean it belongs everywhere, even though powerful forces, from various homestead laws to today's growing national craving for organic foods, offer incentives to break sod. Though Montana still holds vast expanses of native prairie, it is losing ground, literally. Between 2005 and 2009, another 47,000 acres of previously unbroken sod was busted, according to the Montana State Farm Service Agency, adding to the millions of acres tilled in previous generations. Fortunately, conservation agencies and organizations—along with a growing number of landowners—are working to retain Montana's remaining grasslands and restore some of what has been lost.

ANNE SHERWOOD

GRASS STEWARD Leo Barthelmess, Jr., a third-generation rancher in Phillips County, identifies native grasses on his property. Winner of the 2009 Montana Neighbor Award for land stewardship, Barthelmess says his cow-calf and sheep ranch now sees more elk, deer, and pronghorn after he began a rest-rotation grazing regime.

After its sheer vastness, the prairie stikes you next with the magnitude of its quiet. Chances are, it's been a while since you've put all the world's machines out of earshot. You might not even notice them much of the time. But in the prairie, it's easy to escape the din, at least for a while. So listen. At first, you might not hear anything. Listen some more and you'll hear wind, probably some birds, maybe your own heartbeat. But that's about it. The silence out there is palpable.

Then look around your feet, at the grasses and sagebrush, not much of it taller than your knee. This foliage is ancient, part of a perpetual cycle going back to the time when glaciers chewed this country. For 10,000 years, this suite of plants—nearly 200 grasses and forbs (flowering plants) such as blue grama and Lewis's blue flax—has survived the kind of droughts that split open the earth. It outlives fire that can outrun a race horse. It stands up to winds that can peel the hide off a barn. It endures cold that cracks stones and has learned to live with the teeth and hooves of millions of animals. It existed during the time of mastodons and camels and the short-faced bear. It saw the coming of bison and elk and humans and cattle. Through all this, the prairie has survived.

So has prairie wildlife. According to the American Bird Conservancy, more than 200 native bird species live on shortgrass prairie, at least part of the year, including chestnut-collared longspurs, sharp-tailed grouse, and Baird's sparrows. Plus, you'll find prairie dogs, antelope, both mule and white-tailed deer, and predators in the air and on the ground. Elk are returning to their historic grassland range in eastern Montana. Ducks and geese swarm the waterways, paddling over northern redbelly dace and other prairie fish that swim below. Beavers have learned to build dams with mud and cattails instead of tree limbs. Coyotes howl most every night, and you might spot a bobcat or a cougar. They all depend on grass, in one way or another.

In addition to supporting life above ground, prairie plants create productive soil underneath. On the arid northern Great Plains, roots need a long reach to find water. And during times of drought, native plants retreat into those roots, where they wait for rain. Thousands of years of plant growth has produced rich soil that, when tilled, grows crops that feed people and support farm families and sustain agricultural communities. That, in part, is why the federal government's farm program has supported the conversion of prairie to farmland. The program poured $4 billion into Montana's agricultural economy between 1995 and 2006, according to the U.S. Department of

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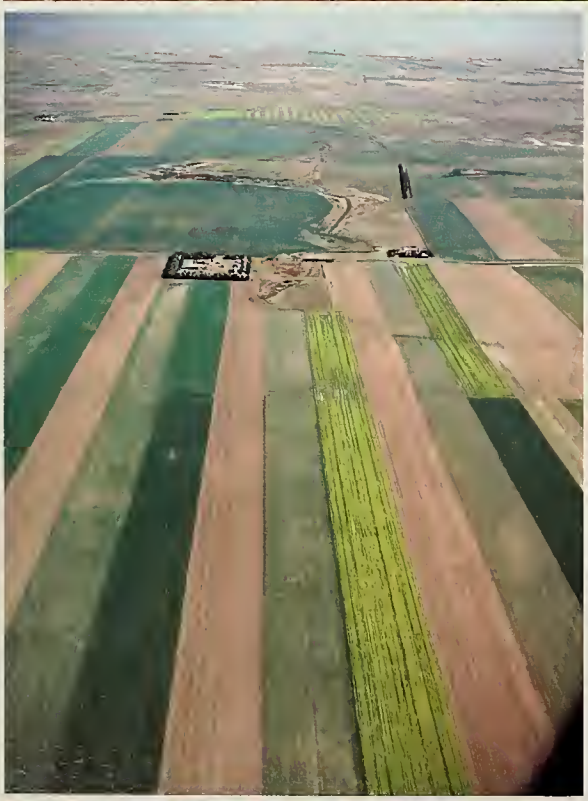
Scott McMillion, of Livingston, is a freelance writer and a senior editor for Montana Quarterly.

CLOCKWISE FROM TOP: DONALDMJONES.COM; DEE LUNDELL BLANK; DIANE HARGREAVES

BIOLOGICAL RICHNESS Montana's shortgrass prairie is home to hundreds of native bird, forb, and grass species. A sampling, clockwise from top: savannah sparrow; nipple cactus at the Comertown Pothole Prairie Preserve near Plentywood; blue grama grass near Malta.



CLOCKWISE FROM TOP: CHRIS BOYER; PAUL KUNZE; KRISTI DUBOIS

CONVERSION CONTINUES Federal farm policy has long encouraged prairie plowing (top). Even today, while some programs pay for restoration, others encourage sodbusting. Though devastating to prairie ecosystems, cultivation has been the lifeblood of agricultural communities such as those in the Golden Triangle north of Great Falls (above left) and, along with ranching, communities such as Malta (above).

"Last year a herd of antelope came through that had to be a couple of miles long."

Agriculture. And most of the money has gone to parts of the state east of the Continental Divide that were native grasslands.

About $1.3 billion of that went to the Conservation Reserve Program (CRP), which pays landowners a rental fee to plant grass on parcels of broken sod and leave it alone. The goal is to prevent erosion and restore land that probably never should have been plowed in the first place because it was too dry or too erodible. CRP is popular with hunting and conservation groups because it creates habitat for game birds, waterfowl, and songbirds and helps keep soil from blowing downwind, into waterways. But the handful of grass species planted on CRP lands can't replicate the full ecological value of native prairie previously there. And while the USDA pays people to put farmland into grass and let it rest, the farm program also produces powerful financial incentives to continue busting sod and put it into crops, mostly wheat in Montana.

Such enticements are nothing new. The federal government has subsidized conversion of grassland to farmland since the Civil War, when it first granted applicants title to 160 acres each of undeveloped land in the West. And crop subsidies have become a key component of modern agriculture in America, helping it survive the vagaries of weather, insect infestations, and global price fluctuarions.

Still, the vast and complicated farm program offers contradictory enticements for both sodbusting and grassland restoration. "Farm program payments and conservation programs may be working at cross-purposes with one another," concluded a 2007 General Accounting Office report on the federal farm program. It cited an example: Between 1982 and 1997 landowners in South Dakota enrolled 1.69 million acres of busted sod into CRP. Over the same period, 1.82 million new acres were broken.

Putting additional pressure on remaining prairies are dryland farming techniques and genetically modified crops that make it possible to farm in places where it wasn't possible before. Ironically, America's growing appetite for organic foods such as pasta and bread also encourages sodbusting. If a field has been treated with chemicals, it takes three chemical-free years before its crops can be certified as organic, and thus fetch a higher price. When an untainted native prairie is plowed, the conversion to organic comes immediately.

Brian Martin stresses that he is not in the cattle business. But the director of science for The Nature Conservancy (TNC) in Montana sees cattle as an effective tool for what he calls his organization's "conservation business." Part of his job is overseeing TNC's sprawling Matador Ranch in southern Phillips County, a place where the plow has been lightly used. "Out here, we're better than 80 percent grass," Martin says. "There's not a lot of those places left." He describes his native North Dakota as mostly "crops, with a few patches of grass." He and a growing number of conservationists and landowners are doing all they can to help Montana's prairies avoid that fate.

DEA VOGEL

LONGTIME RESIDENTS Pronghorn sometimes do well in croplands but usually require undisturbed sagebrush and prairie, where they have evolved for thousands of years.

The Matador Ranch, once part of a string of cattle properties that ran from Texas to Saskatchewan, now operates as a grass bank. That means it sells grazing opportunities to ranchers, with conditions. If the ranchers take specific conservation steps on their own property, like protecting sagebrush cover for sage-grouse and maintaining prairie dog habitat—which also benefits mountain plovers and burrowing owls—they get as much as a 50 percent discount on grazing rates on the Matador. "But if you bust ground on your home ranch or leased land, you're permanently out of the grass bank," Martin says. That's because once sod is tilled, it loses much of its value to prairie birds and other native wildlife.

The Matador model gives TNC considerable conservation leverage. While the organization's ranch contains 60,000 acres, the incentives it offers to neighbors extend prairie-friendly ranching to 240,000 acres. The ranchers do the cowboy work, moving cattle frequently to establish a mixture of short, medium, and tall grasses for native birds. "Some species like it tall, some like it middle, and some like it short," Martin says.

Dale Veseth is one of about a dozen ranchers who graze cattle on the Matador. He says he likes the program, in part, because he believes incentives work better than regulations. Veseth, whose family has ranched in southern Phillips County since 1886, is part of the Ranchers Stewardship Alliance, composed of 35 Montana ranching families. The group's goal is to protect prairie as well as the economic livelihood of ranching families and communities. "When done right, ranching can sustain prairie and wildlife diversity," Veseth says.

Veseth starred learning to identify grass species when he was eight years old. Now he's learned to identify most of the birds on his ranch, knowledge he'd like to see spread wider. "I'd like every rancher to learn the spring call of the Sprague's pipit," he says.

Helping protect native plants and wildlife isn't just a hobby. Veseth and other ranchers want to keep the weight of the federal Endangered Species Act (ESA) off their necks. "You get a whole group of regulations," with an ESA listing, he says. "At the grassroots level, people feel very threatened by that."

"People like me have no intention of selling our ranches. Our ranches are our life."

The U.S. Department of the Interior recently ruled that, under the ESA, the sage-grouse is "warranted" for federal protection "but precluded" from listing as endangered for now because other species are even worse off. Though sage-grouse are faring well in Montana, federal listing would affect all states where the bird lives. Other bird species also are in serious decline, and many breed on Montana's native prairie. Veseth says he'd like to keep them there. And keeping bird habitat intact is good for lots of critters.

"My dad grew up on the ranch," he says. "He's 68. And he saw his first antelope when he was 13. Last year a herd came through that had to be a couple of miles long. You couldn't see the beginning or the end."

When it comes to wildlife and livestock, it doesn't have to be an either/or decision, says Veseth. "In my mind, it has to be both."

Plenty of other players are working to conserve prairie habitat. As budgets allow, both state and federal governments buy, from willing landowners, conservation easements that ban sodbusting. Groups like the Montana Stockgrowers Association, working under a now-expired federal earmark, helped the owners of more than 1 million acres find ways to make their property better for both wildlife and cattle through the Undaunted Stewardship Program.

Northeast of the Matador Ranch, Montana Fish, Wildlife & Parks conserves upland and riparian habitat through its Milk River Initiative. The department purchases, on private ranches, conservation easements that require sellers to maintain wildlife habitat and public access for hunters and others. "It's not just about pheasants and whitetails and turkeys," says Pat Gunderson, FWP northeastern region supervisor in Glasgow. "We also want to conserve prairie habitat for songbirds and frogs and all the other grassland species out here."

So far, Gunderson's region has compiled 50,000 acres of conservation easements, and more ranchers are interested. The initiative allows ranchers to stay in production, protects prairie, and ensures public access. It also helps FWP avoid future property management expenses, such as spraying for weeds, by keeping the land in private ownership, Gunderson says. The goal on each property is to leave half the ground in agricultural production and half in habitat. "If we can stitch enough of these small places together, then we can have something," he says.

One of the newest, most ambitious, and most controversial prairie conservation organizations is the American Prairie Foundation (APF). It aims to put about 3.5 million acres of Montana prairie into conservation management. So far it has purchased 11 ranches in southern Phillips County, totaling 121,000 acres. The group seeks properties that lie between big blocks of public land, which already have a mandate to manage for wildlife. "Our goal is to glue it all together," says APF president Sean Garrity, a native Montanan and lifelong hunter. "We want to see more elk, more deer, more bighorns, more antelope."

The prairie conservation organization raises eyebrows among some neighbors, Veseth among them. In a recent article profiling the APF in *Reader's Digest*, he said, "People like me have no intention of selling our ranches. Our ranches are our life." State officials are aware that APF's work is a sensitive topic. "We understand the foundation's objectives and respect their right to purchase private property," says Joe Maurier, FWP director. "But we also appreciate and respect local concerns with the impacts such large acquisitions can have on an area's culture and economy."

Interest in conserving Montana prairies extends beyond state borders. The APF's board of directors includes titans from the business, artistic, and scientific world across the country. It has raised more than $20 million from private donors. Veseth, too, can rattle off a substantial list of scientific, agricultural, and social groups working with his stewardship alliance to conserve Montana's prairie and ranching communities, ranging from the Malta Chamber of Commerce to the Arizona-based Malpai Borderlands Group. He says he's working with groups from Washington state to the southern Great Plains addressing common concerns.

Driving across the prairie is a yawner for a lot of people. But a lot of people are taking a closer look, too.

The first step begins with getting out of the car.

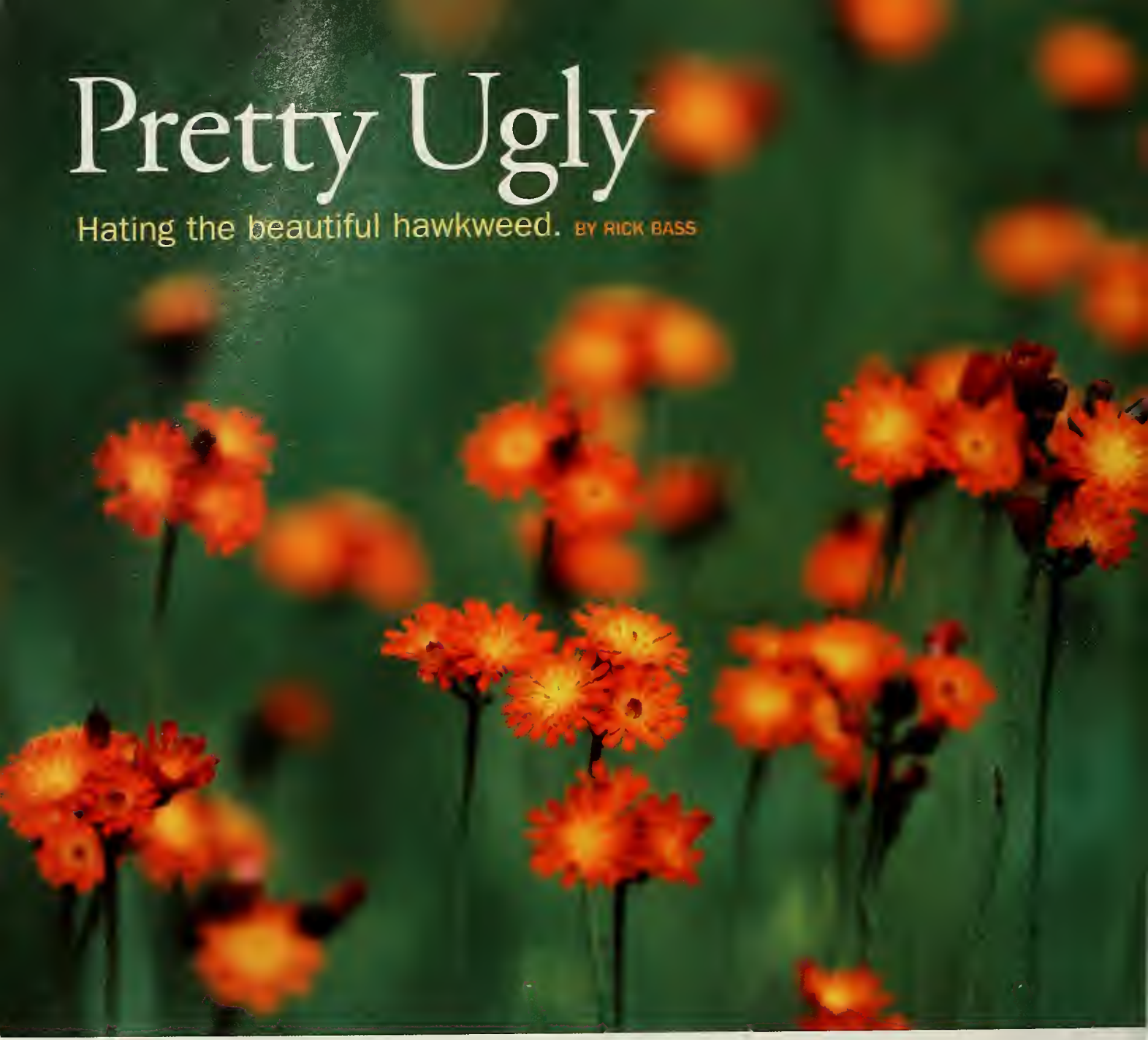
ANNE SHERWOOD (LEFT); KENTON ROWE (RIGHT)

GREEN GRAZING Dale Veseth (above left) and Greg Oxarart (opposite, moving cattle across pasture south of Malta) are two of a dozen ranchers using the Matador Ranch's grass bank. Ranchers have long held that, when managed properly, cattle can actually improve grassland health (above right) by mimicking the historic grazing of bison across the prairie.

MIKE SHERWOOD

Pretty Ugly

Hating the beautiful hawkweed. BY RICK BASS



July: First baby robins on the porch, where they fledge each year, first Pacific tree frog in the garden, seeking each day now the watering can's moisture. First bellflower blooms, first twinflower, first monk's hood, a brighter purple than any king's robe. First wild strawberries—so much color!—and, unfortunately, but inescapably, the first blossoms of hawkweed, a noxious invasive weed that is infinitely more aggressive than even the nuclear waste of knapweed and thistle. The knapweed's bad, invading dry sites, and displacing native grass directly—nothing eats knapweed, and as it spreads, it chokes out the grasses that the elk herds rely on—but the hawkweed grows everywhere, dry or wet, shade or sun, and seems to know no limits. It displaces all of the complex and crafted native flowering plants—lupine, bellflower, kinnikinnick, paintbrush, yarrow, Oregon grape, wild strawberry—and while it's bad enough, from a biological perspective, the colonization seems also to taunt a lover of wildness and diversity from an aesthetic standpoint, for the blossoms of the hawkweed, by itself, are so damn beautiful: a brilliant, almost hallucinogenic orange, the roadsides and old logging roads now ablaze, like fields of poppies.

(Though in these monochromatic sweeps of such rich, even luscious, orange, I think that even someone unfamiliar with the ecology of the region might sense the ominous danger beneath the beauty, might see the mosaic of diversity throughout the forest, and notice the homogenous and wide blazes of orange as the anomaly, and the dis-uniter, and not possessing the cohesive cooperating, fitted spirit of the place, no matter how beautiful the orange might seem, in and by itself.)

W. STEVE SHERMAN

So there is a sleepiness in July, a summer leisure—an in-betweenness—though there are also the beginnings, already, even in the midst of summer vacation, of a rising responsibility, for those weeds must be picked if they aren't sprayed. And for as long as we can combat them by hand, we will, for it seems that to bring spray and poison into our lives, and near the marsh, with its tender amphibians, and into our watershed, and our lives, would be to admit defeat—what good are the natives, if they possess poison in their veins?—and even if we did decide to try to poison the hawkweed and knapweed and dandelion and thistle, and this year, increasingly, the St. John's wort, the same poison that kills these broadleaf weeds would also kill the natives.

Instead, we pick. We get down on our hands and knees in the tall waving grasses of July, and pull up, by the matted, tuberous roots, the insidious runners of moisture-robbing hawkweed. Like hunters, we know where the weeds are likely to recur each year, and we keep pulling them, hoping to weaken and stress the invasives so the natives can out-compete them. We remain vigilant for new outcrops, too. Our battle is just one tiny battle in the wilderness here at marsh's edge—we will change nothing, will at best only buy a little more time—but we have not yet reached a level of acceptance where doing nothing is tolerable, and so we pick, and pick, in July: kneeling in the mixture of tall grass and weeds, surrounded by mosquitoes, sweating, pulling, stuffing trash bags full of weeds. It is such a break-even battle—some years, our progress is visible, though each year we have to pull harder—and again, from the entire landscape's perspective, two million acres of national forest, so ultimately futile—that we realize early on our efforts are really like nothing else so much as prayer and penance to that landscape—a sort of Zen exercise, or tithing to the land, and to the marsh—though I can't help but wonder too, some years, if the truly Zen or prayerful thing to do would be to stop fighting loss and change, and to simply let the weeds of the world come rolling in.

Each year, however—each July—I pick each weed, every weed, that I see, on our property at least, as well as on my hikes through the woods; and I suspect that even when I am old, I will still be picking them, out of some deep and stubborn allegiance to my own perhaps arbitrary and singular concepts of integrity. And I think that it is not that I hate weeds so much as it is that I love this landscape, this incredible ecosystem, so deeply, just as it is—in the fullness of its incredibly unique diversity, ten thousand years in the making.

What I mean to say is, even the weed pulling in July is one of the ways I relate to this landscape now, is an aspect, a component, of that relationship, so that it is not even so much a matter of whether I "win" or "lose" (I'll lose, for sure; no one can defeat time), but rather that I continue on in that relationship, according to my beliefs and values, for as long as I am able—which, I like to imagine, is for as long as I am alive.

Rick Bass is a novelist and nonfiction writer in Troy. This essay is from The Wild Marsh: Four Seasons at Home in Montana.

Picking Up After Others

Concerned citizens team up with FWP and other public agencies to clean trash from the Blackfoot, Bitterroot, and Clark Fork rivers.

BY PAMELA J. PODGER

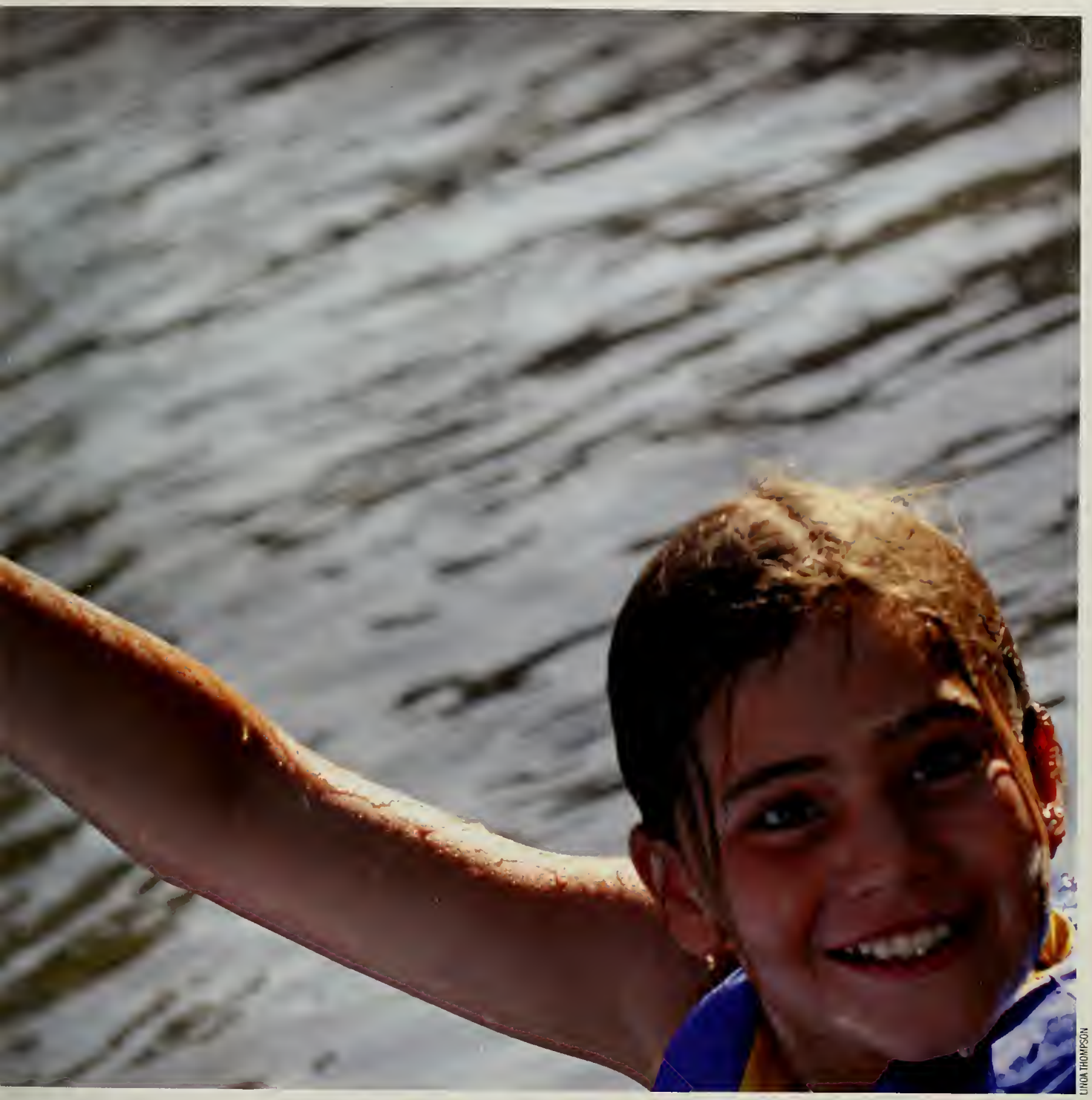
Angler Jacqueline Lanser stands knee deep in the Blackfoot River. But instead of catching rainbow trout, her usual quarry, today she is snagging cans, bottles, shoes, and other debris from the sparkling waters. Helping out are her two nieces, Kyleigh and Danielle Ritchason, along with 135 other anglers, rafters, landowners, business owners, and public agency staff taking part in the sixth annual Blackfoot River Cleanup. "The Blackfoot is a good part of our lives," says Lanser, who lives in nearby Missoula. "Rivers give to us and we wanted to give back."

NICE CATCH A young volunteer hoists one of the 1,551 aluminum cans that cleanup crews pulled from the Blackfoot River in a single day last year. Below left: Growing numbers of anglers and floaters mean more trash in some rivers.

BRIAN FRENCH

Montana's rivers may look clean, but in recent years some have been littered with trash—aluminum cans, glass bottles, plastic water containers, sunglasses, flip-flops, and other garbage tossed or lost by growing numbers of floaters, inner-tubers, kayakers, and anglers. Glass shards, sharp cans, and fish hooks can impale bare feet. And plastic bottles, beer can insulators, and other garbage on river bottoms and banks are eyesores. "It's really frustrating when you're outdoors and come across other people's trash," says Missoula math teachet Lee Brown, who volunteered for the cleanup with his daughter, Alex.

Though Montana's rivers have long been popular, river use in recent



LINDA THOMPSON

years appears to have outpaced the state's population growth. "We don't have hard data, but everyone in the river business—agencies and users—seems to agree more people are floating the Blackfoot, Bitterroot, and Clark Fork than ever before," says Chet Crowser, FWP regional river recreation manager in Missoula. Crowser suspects the reason is that several scorching-hot summers over the past decade sent people to rivers for relief, and they've continued to return. "After FWP responded to hot temperatures and low river flows with fishing closures, summer angling tapered off and we saw a transition toward floating, swimming, and sunbathing," he says.

Some litter comes from floaters unwilling to stash their trash. Some comes from minors dropping their alcohol containers into the river before reaching take-out sites so they aren't ticketed. But most littering is likely accidental. "A lot of people are floating in inner tubes with coolers, and when they flip, they lose everything," Crowser says. "It's not intentional."

But it is a problem. "When you spot a broken bottle or a beer can reflecting sunlight from the river bottom, it's not what you want to see on a beautiful river like the Blackfoot," Crowser says.

Glass containers are now banned on the Blackfoot. The Bureau of Land Management and FWP provide mesh bags to Blackfoot River floaters for personal items and trash. The agencies have also installed

additional latrines and stepped up enforcement of littering laws. Another response has been a growing number of citizen-led river cleanups.

The biggest is on the Blackfoot, where each year volunteers tackle the lower 13 miles of the river upstream of Missoula. FWP estimates the river stretch receives nearly 40,000 "user-days" each year—residents and tourists, college kids and families, inner-tubers out for fun, and serious fly anglers reverently fishing the hallowed waters immortalized by Norman Maclean.

The event is organized by Marietta Pfister, who with her husband, Bob, lives on the river near Bonner. The energetic grandmother runs the cleanup like a military operation. On the morning of the cleanup, volunteers gather at her riverside home, where she displays aerial maps of the Blackfoot and giant organizational whiteboards showing where volunteers will be dispatched throughout the day. FWP Blackfoot River recreation manager Chris Lorentz gives a safety talk to the volunteers before heading out to the river to issue $85 citations to anyone caught with glass bottles. Ground crews and amateur ham radio operators drive to various checkpoints and help patrol the banks. Other volunteers walk, wade, float, or snorkel while picking up trash. Twenty-two volunteer scuba divers help retrieve bottles, deflated inner tubes, and other unwieldy debris that builds up in the river's deeper holes.

LINDA THOMPSON

Among the items collected during the 2009 Blackfoot River Cleanup

- 1,551 aluminum cans*
- 72 glass bottles
- 178 plastic bottles
- 89 shoes
- 14 inner tubes
- 1 raft
- 11 baseball caps and other hats
- 24 sunglasses, most broken
- 1 wallet inside a fanny pack, which was taken to the sheriff's office

*Recycled, with proceeds donated to the local fire department.

Clark Fork River 30 miles west of Missoula. Volunteers in boats and along riverbanks bagged 1,600 pounds of trash, including 40 car, truck, and tractor tires. "We're getting stuff that's been in the river for years," says Crowser, who coordinated the event. In September, roughly 100 people helped remove 1 ton of trash along 55 miles of the Bitterroot River from Painted Rocks Reservoir to Florence. Organizer Don McGourty says volunteers on the third annual cleanup retrieved car parts, beer cans, tires, hubcaps, and discarded cell phones. For the past two years, Adventures Unlimited and Save the American River Association have sponsored a cleanup along the Missouri River downstream from Holter Dam.

Charlie Sperry, who coordinates statewide river recreation management for FWP, says the cleanup efforts show that citizens are willing to take on responsibilities for river management. "FWP and other agencies can't manage all the diverse issues related to rivers on our own," he says. "We need to work with people who will help us. That's the kind of relationship building we're seeing at these cleanup events."

To help inform people about trash, crowding, and other river problems, FWP, concerned citizens, and a conservation-minded Bozeman ad agency have put together a lively public information campaign called Respect Your Rivers. FWP's Citizens' Advisory Committee in southwestern Montana enlisted the help of Brickhouse Creative to produce, at no charge, television and radio PSAs that feature a character called Granny Trout, who chides river users for crowding others, littering, and clogging boat ramps. "Sometimes we can't solve our problems with more regulations, rationing, or allocation systems," says Jerry Walker, FWP regional parks manager in Bozeman. "But if we can influence the behavior of people positively, we might be able to solve the problem in a different fashion."

As the afternoon shadows fall across the Blackfoot, volunteers trickle back from the river. They empty their bags of trash onto a growing pile, culling the recyclables, before washing up and digging into a complimentary barbecue. Over burgers, hot dogs, baked beans, and watermelon, they swap stories about their day—and talk about the bizarre items they extracted from the river, including hypodermic needles, pitchforks, and cell phones.

Marietta Pfister thanks all of the volunteers while ensuring they get enough to eat. "I want people to know the river cleanup is aimed at more than one day," she says. "I hope to change people's habits. My goal is that on cleanup day a few years from now, we won't find any trash in the river."

"My goal is that on cleanup day a few years from now, we won't find any trash in the river."

The Blackfoot cleanup has inspired similar efforts on other western Montana rivers. Last August, FWP coordinated a community cleanup of Alberton Gorge on the lower

Writer Pamela J. Podger recently moved from Missoula to Vermont.

See Granny Trout videos and other information on river ethics at respectyourrivers.org.

OPERATION CLEAN RIVERS Clockwise from above: Volunteers receive assignments at the Blackfoot cleanup check-in station; FWP and the Bureau of Land Management provide mesh bags to floaters and cleanup crews for carrying trash; scuba divers scour the deepest holes on the Blackfoot River for sunken debris; Blackfoot River volunteers with bags of salvaged cans; FWP regional river recreation manager Chet Crowser (left) and Missoula game warden Aaron Berg with some of the 40 car, truck, and tractor tires pulled from Alberton Gorge on the Clark Fork last year.

More information

To start your own river cleanup or take part in existing efforts, call or e-mail FWP Blackfoot River recreation manager Chris Lorentz at (406) 677-6804, clorentz@mt.gov.

ALL PHOTOS THIS PAGE BY LINDA THOMPSON, EXCEPT FOR BOTTOM LEFT IMAGE BY MONTANA FWP

Over the past six years, 140 trumpeter swans have been reared and released in the Blackfoot Valley. Now the majestic birds face power lines, illegal shooting, and other dangers as they try to return home.

AWAITING THE TRUMPETER'S RETURN

BY NICK GEVOCK

BRUCE BECKER

W. STEVE SHERMAN

SAD SETBACK A banded trumpeter swan lies dead in a pond after flying into a power line. Only a few of the 140 swans released in the Blackfoot Valley in recent years have returned. "Each death is hugely significant, because it can set the restoration back by several years," says FWP biologist Tom Hinz.

Louie Bouma didn't know it at the time, but his effort to save four orphaned trumpeter swan eggs would launch a waterfowl conservation movement. The owner of a post and pole yard near Lincoln had watched a pair of the white, long-necked birds set up a nest at his pond in spring 2003. He was used to seeing lots of ducks and geese, but no nesting swans had been documented in the Blackfoot Valley since the late 19th century.

Bouma's son found the female swan dead in the driveway early one morning in late May. The power was out at the post and pole yard and the office clock had stopped at 1 a.m., leaving little doubt that the swan had hit a power line.

Undeterred by the loss, Bouma retrieved four eggs from the nest and kept them warm. Within hours, local volunteers and Montana Fish, Wildlife & Parks biologists transported the eggs to the nonprofit Montana Waterfowl Foundation near Ronan. There, cared for by a pair of surrogate trumpeter swans owned by the Confederated Salish and Kootenai Tribes (CSKT), three eggs hatched.

Tom Hinz, FWP Montana Wetlands Legacy Partnership coordinator, says that after the fledglings grew into juveniles, they were returned to Bouma's pond. That's when he and other wildlife biologists began thinking about the trumpeter's place in the Blackfoot Valley. "The male spent months with them, and eventually they flew out of there and into history," Hinz says. "That really inspired us and the U.S. Fish & Wildlife Service (USFWS) to work with people like Louie and other folks in the Blackfoot Valley to bring these birds back."

KILLED FOR FASHION

Though no estimates exist of historical trumpeter swan numbers in the Blackfoot Valley, Meriwether Lewis wrote of the big white birds while passing through the area in 1806. Early Montana settlers made nore of the swans, which, weighing over 20 pounds and with a wingspan of nearly 7 feet, are North America's largest waterfowl. Greg Neudecker, a biologist with the USFWS Partners for Fish and Wildlife Program, says these and other historical accounts indicate the wetlands-rich valley held a healthy population that returned each summer to nest. But that was before rhe whire-feathered har became a fashion staple of Europe.

Beginning in the lare 1800s, trumpeter swan populations declined across North America and were eliminated from the Blackfoot Valley. Settlers shot the big birds for food, but it was the commercial harvest of swans to supply the millinery trade in Europe that depleted the population to near extinction. As they did with egrets and herons killed in the South, U.S. exporrers bundled tens of thousands of dried swan hides for shipment across the Arlantic to adorn hats for fashionable ladies. Slow to take flight, trumpeter swans were particularly vulnerable to market hunters. Not until 1916 did international law stop trade in swans and other birds among countries, ending the widespread slaughter. Unfortunately, the regulations came too late to save most trumpeter swan flocks that once graced wetlands like those in Montana's Blackfoot Valley.

Protection from commercial harvest helped the Rocky Mountain trumpeter swan population, which spans both U.S. and Canadian nesting grounds, to slowly

increase. The population today is nearly 5,000 birds. Roughly 80 to 90 percent are Canadian swans that nest north of the international border. Many pass through Montana during spring and fall migrations, but only a few stay here to nest. (Twenty-one pairs nested in Montana last year—including five in the Flathead Valley as a result of the CSKT's successful reestablishment of a flock there, eleven in the Centennial Valley around Red Rock Lakes National Wildlife Refuge, and the rest at scattered sites.) Other than the pair Bouma found at his pond in 2003, no trumpeters have nested in the Blackfoot Valley.

In 2004, state and federal biologists devised a plan to restore trumpeter swans to the Blackfoot. The first step was for biologists to inventory the valley's abundant wetland habitat. They documented 30,000 wetlands—ranging from shallow puddles that warm early in spring to deeper marshes rich in nutritious vegetation. "That rivals the wetland density you find in the prairie pothole landscape of the Dakotas, except it's surrounded by mountains," Neudecker says.

The most important habitats for trumpeter swans, says Hinz, are basins of clean water with abundant submergent vegetation and nesting security. He calls swans "aquatic horses" because the birds graze all day to sustain themselves. A young swan puts on 12 pounds in just a few summer months while developing from a hatchling to a bird that flies south for the winter.

Nick Gevock is a freelance writer in Butte and a reporter for the Montana Standard.

LEFT TO RIGHT: KRISTI DUBOIS; BOB MARTINKA; BOB MARTINKA; ISTOCKPHOTO

SWAN SHIPMENT Left: Juvenile trumpeters reared in Wyoming but still unable to fly are trucked to a wetland complex in the Blackfoot Valley. Right: Volunteers and state and federal officials release swans during summer 2009. FWP biologist Tom Hinz says the swan restoration effort derives much of its support from bird lovers who help pay to rear each bird from an egg, mark it with a leg band or neck collar (some with satellite transmitters, below), then turn the swans loose into the valley's wetlands.

"Water quality is critical because sunlight needs to get through to reach the plants," Hinz says. "A muddy, murky pond just won't work for swans."

The habitat review also showed the valley contains many ponds with islands and muskrat lodges where swans can nest secure from foxes and other roving predators. The birds also need to stay clear of humans. "In other states and in Montana there have been instances where people went up to examine a nest—they didn't really bother the birds; they just looked—and the pair abandoned the pond and never nested there again," Hinz says. "Trumpeter swans aren't like Canada geese on the golf course. They are very wild creatures and usually don't tolerate a lot of human activity."

After the wetland inventory, biologists established a goal of seven nesting pairs for the Blackfoot. In 2005, they began releasing birds provided by the Wyoming Wetlands Society in Jackson, starting with 10 individual birds. "The idea is that a swan is likely to return to where it first took flight," says Hinz. "But even more important, after it returns the following spring it then stays at that site and molts [drops old feathers and grows new ones]. That takes several months, and as it hangs around a wetland waiting until it can fly again, the bird develops an affinity for that place. Then, hopefully, it

HOW YOU CAN HELP

- If you see a swan collide or nearly collide with a power line, fence, tower, or other obstruction, contact Tom Hinz at (406) 994-7889, thinz@mt.gov or Greg Neudecker at (406) 793-7400, greg_neudecker@fws.gov.
- If you find a dead or injured swan, contact Hinz or Neudecker. Birds with damaged wings or other injuries often can be saved if promptly cared for by wildlife professionals.
- Report sightings of any swan with a neck collar. The red plastic collars on swans released into the Blackfoot Valley have an identification code easily read through binoculars or a spotting scope.
- If you hunt, consider not shooting any swan with a neck collar. It might be one of the few trumpeters trying to return to the Blackfoot Valley to nest.
- Hunters and others can learn to distinguish trumpeter swans from tundra swans by their different calls. Hear the difference at **http://trumpeterswansociety.org/swan-voice.html.**
- Follow Blackfoot swans on the Internet at **http://blackfootchallenge.org/SwanProject/.**

BOB MARTINKA

FLYING THE GAUNTLET Biologists say too many released swans returning to the Blackfoot are colliding with fences and power lines (above). Or they are shot—purposely by vandals or accidentally by hunters mistaking them for tundra swans.

returns in later years and nests there." Unfortunately, things haven't worked out that way in the Blackfoot—yet.

RETURNING BUT NOT NESTING

So far, says Hinz, none of the 140 swans released into the Blackfoot Valley over the past six years have returned and nested. A few pairs containing either one or two previously released birds have come back, but they have not laid eggs. "On the one hand that's discouraging," says Hinz. "On the other, the fact that some are coming back is a hopeful sign. That's how restorations like this have succeeded in other parts of the West."

The whereabouts of most of the released birds is a mystery. Fitted with highly visible identification bands around their necks, some trumpeters have been spotted in parts of western Montana, as well as in Utah, Wyoming, Idaho, and southern Alberta. It's likely, however, that most of the released birds have died. "Trumpeter swans often fly a lot lower to the ground than other waterfowl, and they don't seem to see obstructions like fences and power lines," Hinz says. Others die from parasites and predators, and a few are shot every year by hunters mistaking them for similar looking (and far more abundant) tundra swans, as well as by miscreants who shoot them for no good reason. Despite the setbacks, however, biologists aren't discouraged.

Hinz says power companies have been willing to hang reflectors from power lines in areas used by swans. Though some swans still fly into the wires, the fluttering reflectors have reduced mortalities. He and other biologists are also working with property owners to put reflectors on fences and other obstructions that could pose a hazard to flying swans.

Because tundra and trumpeter swans are virtually indistinguishable in flight, waterfowl hunters—especially at Freezout Lake, two hour's drive northeast of the Blackfoot Valley—are urged to learn the distinct difference between the two species' calls. Tundras sound much like barking dogs, while trumpeters have a lower-pitched, nasal, slightly hoarse *hurp* or *uh-OH* call. Trumpeter swans are not federally threatened or endangered. It's legal to hunt them in the western half of Montana (the Pacific Flyway), though not elsewhere in the state.

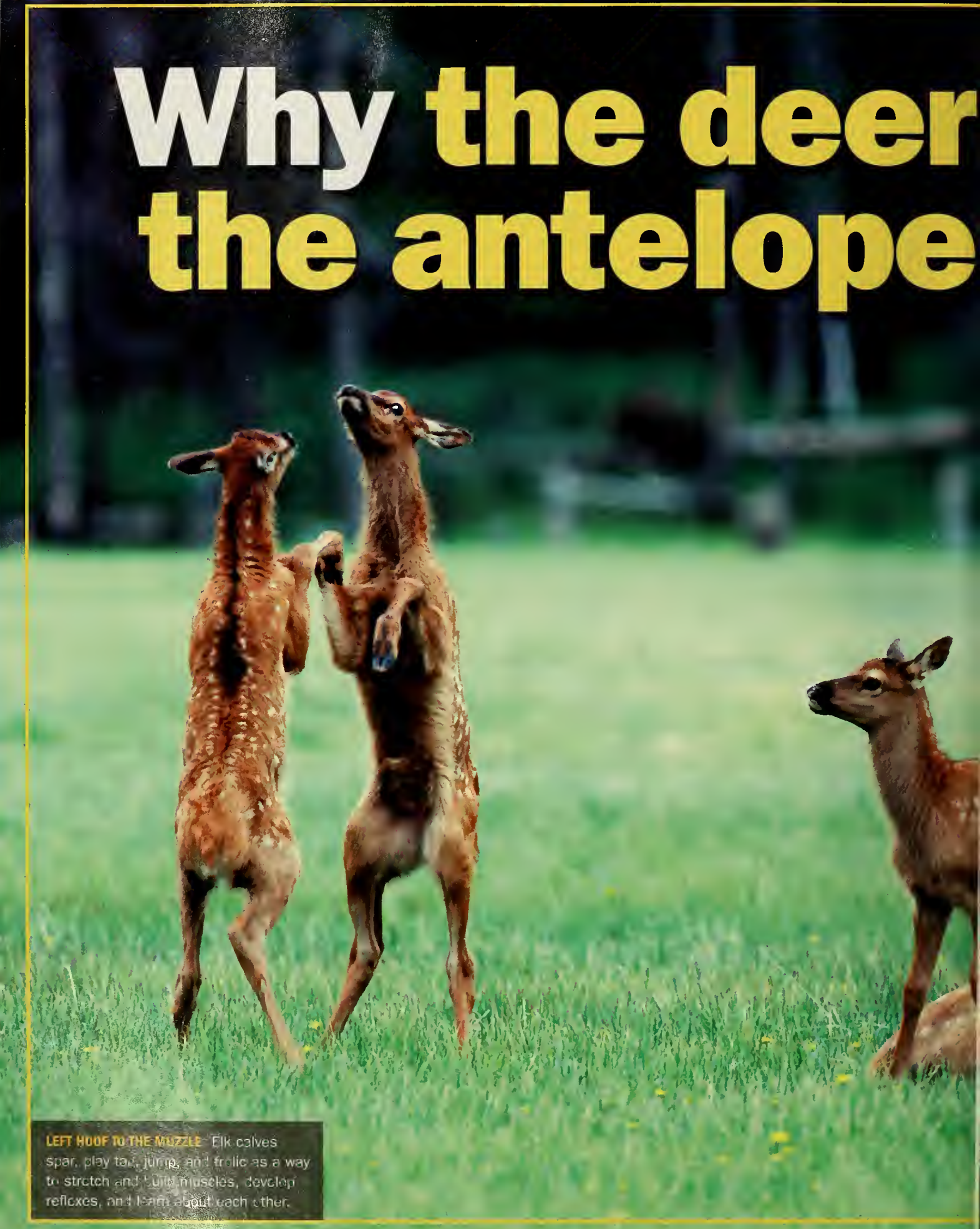
> "The future of the Blackfoot flock rests with this handful of migrating adults."

Neudecker is not surprised that no swans have nested in the Blackfoot Valley so far. It takes trumpeters three years to reach sexual maturity, which means the release program is only now reaching the point where some of the first released birds could come back and successfully rear young.

That will be the turning point, Hinz says. Swans mate for life—unless one of a pair dies—and the young are prone to return to their nesting grounds year after year. If multiple nesting pairs produce young, there's a good chance trumpeters will reestablish in the Blackfoot. "That's why we're stepping up public awareness efforts about protecting these swans," he says. "The future of the Blackfoot flock rests with this handful of migrating adults. The loss of just a few breeding swans from power line collisions could delay the restoration by years."

Neudecker says he and other biologists have always known the restoration wouldn't occur overnight, but they're confident it will occur. "Slowly but surely, trumpeter swans are coming back to the Blackfoot," he says. "You want it to happen immediately, but it's really a long-term process."

Why the deer the antelope



LEFT HOOF TO THE MUZZLE Elk calves spar, play tag, jump, and frolic as a way to stretch and build muscles, develop reflexes, and learn about each other.

and play

When wild animals goof off, they may be doing more than just having a good time

BY SAM CURTIS

MICHAEL H. FRANCIS

When it's my turn to wash dishes, I spend a lot of time with my hands in the suds and my eyes gazing out the window above the kitchen sink. I can see our hay field and beyond to the partially forested hillside.

White-tailed deer are the most frequent visitors. Does and fawns move into the field at dawn and dusk, especially during summer. They lower their heads momentarily to tear off mouthfuls of vegetation, then snap to attention—sprigs of grass between their lips—to look, listen, and sniff for signs of danger.

One evening this summer, two does and two fawns appeared in the low light just before the sun dipped behind the western hills. The foursome seemed cautious and tentative at first. Then one fawn erupted into a headlong flight away from the group, only to wheel around and race back to make an abrupt halt in front of the second fawn. A doe made a lunge at the frisky fawn, and the young deer raced off again, zigzagging down the field with the other fawn in pursuit.

For several minutes, the two young whitetails took turns chasing each other around the meadow, sprinting, leaping, and dodging. Occasionally, they'd veer near their mothers, inciting the does to join the chase before abruptly stopping to test the surroundings for danger.

Anyone watching the behavior of those fawns would surely have described it as play. We also see play activity in kittens when they wrestle and cuff and jump at one another from hiding places. We say puppies are playing when they chew each other's ears, roll, tumble, bark, and chase. To us, their actions appear purposeless and random, unthreatening, and enjoyable.

Play is a phenomenon that animal behavior scientists, known as ethologists, have researched for only a few decades. "Like many other beautiful things, play is ephemeral, and often difficult to study," write Marc Bekoff and John Byers in their introduction to *Animal Play*, a book of essays by animal behaviorists. "Play typically occupies a small part of an animal's day, and in most species, occurs only during a circumscribed part of juvenile life."

Most researchers agree that play helps foster motor development, cognitive skills, and protocols for social interaction. In an attempt to better understand the significance of animal play, scientists have broken it down into three categories: object play, locomotor play, and social play.

PLAYING WITH TOYS

Many animals, even turtles, toy with inanimate objects such as leaves, sticks, and rocks. Bobcat kits bat and pounce on moths. Wolf pups chew, toss, and shake bones and dried bits

of deer hide. Scientists believe this object play may act as practice for future predatory requirements.

In a study of ravens conducted by Bernd Heinrich and Rachel Smolker at the University of Vermont, young ravens pecked, poked, and pulled at leaves, twigs, pebbles, seashells, glass chips, and bottle caps. They obsessively manipulated and investigated both edible and inedible objects. But they soon tired of playing with anything inedible once they'd become familiar with it. The researchers concluded that the object play and manipulation "serves to familiarize young birds with potential food items that may be unique to their ecological circumstances."

In addition, a young raven would sometimes hang upside down from a branch by its feet, only to let go with one foot in order to pass a stick back and forth between its beak and free foot. Or, while flying, it would pass a stick from foot to beak, or between one foot and another. A raven might even drop a stick while flying and then catch it again in midair. "Ravens engage in a number of behaviors that appear playful, but are likely to involve 'showing off' to other ravens as sexual or status enhancing displays," write Heinrich and Smolker.

Object play in birds and mammals may start out as a clumsy, hit-or-miss affair that slowly improves with repetition. For this reason, researchers believe play may also be a way young animals hone their motor and perceptual skills.

When we watch a hawk soar, swirl, swoop, and dive in the absence of predators, prey, or other birds, it looks like the raptor is simply having fun. The same is true when we watch young mountain goats leap and twirl, or elk calves wheel and race. Young ravens actually slide down snowbanks on their backs.

Researchers believe these and other acrobatics help in what they call "performance-dependent development," which takes place early in an animal's life. For example, in cats, rats, and mice, nerve development in the area of the brain controlling body movements occurs when they are most actively involved in locomotor and rotational play.

"In other words," says Byers, a University of Idaho animal behaviorist, "in these three species, play is turned on when there is an opportunity for experience-dependent modifications of the cerebellum, and it is turned off shortly after the architecture of the cerebellum is complete."

Scientists have also found in lab animals that the early pattern of muscle use determines which types of fibers the muscles will develop. Because that early development coincides with active play, the goofy acrobatics may help a young animal develop specific muscle fibers it will need as an adult to perform essential physical skills.

PLAYS WELL WITH OTHERS

Social play is when animals frolic with other members of their species. It often includes mock fighting and chasing that develop essential skills. For wolves and other pack animals that depend on inner-group cooperation to hunt and kill prey, these games are especially important.

For play to not escalate into serious, dangerous fighting, participants need to make their harmless intentions known to each other. Wolves and coyotes often initiate play with a stylized bow. Crouching with front legs stretched flat on the ground, back legs stand-

Bozeman writer Sam Curtis, a frequent and longtime contributor to Montana Outdoors, *died in December 2009.*

JEFFRICHPHOTO.COM

MICHAEL H. FRANCIS

PLAY DATES They may look comical, but the antics of young animals provide training for their survival in later life. Left: Mock fighting helps fox pups practice social skills. Above: Young raccoons explore new territory where they might find food. Right: Bighorn sheep lambs play chase in training for future pursuit by cougars and other mountain predators.

ing, they bark or wag their tails. This "play bow" may be repeated in the middle of wrestling—especially if one animal gets too rowdy—as a reminder that this is supposed to be all in fun.

Deer, elk, and pronghorn also use signals to communicate playful intentions and prevent injury when sparring, an activity that involves pushing one another around with their antlers or horns. Pronghorn "movements in sparring are slower and more gentle than those used in fighting, and communicative postures are different," write Byers and Michelle Miller in a chapter of *Animal Play*. "As in forms of social play, a set of cues dictates the beginning and ending of sparring matches. The lowering of horns by one male is enough to initiate such a match, while the turning away indicates that it is over and the interaction is mutually terminated. Male pronghorns, at the termination of each bout, occasionally swing their horns around and redirect sparring at the nearest bush."

Play may have other important purposes. Sergio and Vivien Pellis, at the University of Lethbridge, Canada, hypothesize that young animals must overcome the fear of retaliation before they will launch a serious attack on another animal. Play-fighting animals have the opportunity to practice counterattacks without injury, reducing over time the fear of instigating a genuine attack. Like a karate novice safely sparring with a black belt, this helps the animals train themselves to counter when confronted with a real aggressor.

Sparring and mock fighting may also be a peaceful way for adolescent pack and herd animals to establish dominance hierarchies and develop social skills and bonds. Katerina Thompson, at the University of Maryland, thinks play is a way of managing development through self assessment. "Play provides developing individuals with immediate feedback on their physical abilities, and this feedback can be used to regulate future activities," she writes in a chapter of *Animal Play*.

"In many species manipulative and locomotor play predominates during early life," Thompson continues. "More interactive forms of play (e.g., play fighting) usually arise later, perhaps after the requisite physical skills have been developed through solitary manipulative and locomotor play."

Despite the difficulty of studying play objectively, some researchers believe the activity is as fundamental to the healthy development of young animals as it is to that of young children. Object play allows a bear cub or a fledgling golden eagle to discover the physical nature of its surroundings, along with the environment's possible dangers and benefits. Locomotor play and social play help young coyotes and ravens safely learn, in various situations, which responses help them cope successfully and which do not.

At its most basic, play is a rehearsal for handling the diverse objects and situations an animal will confront if it survives to maturity. For those whitetail fawns out my kitchen window, it may be that the more playful they are in their youth, the more adept they will be at coping with mountain lions, or vying for mates, as adults.

SERIOUS BUSINESS The outcome of life-and-death struggles between predator and prey may depend in part on how effectively each animal played as a youngster.

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Small signs help hunters, other recreationists, and landowners by showing exactly where state and federal parcels begin and end.

HERE IT IS

STORY AND PHOTOS BY TOM DICKSON

"There's one," says Dwayne Andrews, pointing from his Montana Fish, Wildlife & Parks pickup out across a sage-grass flat. It's a blue rectangle on a post, a few yards in from the county road. Though tiny, the sign is hugely significant.

It and thousands of others installed over the past decade show the boundaries of school trust lands. On these public parcels, anyone can recreate freely without needing to ask permission. Andrews and a handful of fellow FWP employees, working with the Bureau of Land Management (BLM) and Montana Department of Natural Resources and Conservation (DNRC), have been posting signs indicating hundreds of thousands of acres of previously unmarked state and federal parcels across eastern and southern Montana. The signs are an open invitation for hunting, fishing, hiking, and other recreation. "It's public land," says Andrews, "but most people don't know where it is."

OPEN TO RECREATION

In 1992, the Montana legislature passed a law that said the state's roughly 5 million acres of school trust lands—indicated on BLM and other public land ownership maps primarily as 1-square-mile blue squares—are open to public recreational use. (The law applies only to state lands "legally accessible"—either from public roads, waters, or other public parcels or by permission of the adjacent landowner. Users must purchase a State Land Recreational License, which has been automatically tacked on to FWP conservation licenses.) Previously, those who leased grazing, timber, or mineral rights on state lands could deny public access, and "No Hunting" signs were commonly posted on state sections. The law was an important step for public access to these public lands, says Andrews, "but many of the sections weren't marked, so people would drive right past."

The same has been true for much of the roughly 8 million acres of BLM land in Montana. The agency produces detailed maps indicating the location and configuration of its tracts—as well as all other public lands. But the lack of signs makes it difficult for people to find many BLM lands and be certain they are not straying onto adjacent private property.

Andrews began signing public lands in 2000 as an area manager for DNRC, which, among its other responsibilities, manages school trust lands. The agency leases grazing, mineral, and timber rights to the tracts to generate revenue for public education. "I figured that if there was now a recreational use law for state lands, it was important for the lessees and recreational users to have assistance in recognizing those lands," says Andrews. DNRC lacked additional funds and staff to sign the school trust lands, he adds. "It was up to individuals in the department to adjust their jobs to make the effort. Some did and some didn't."

When he began working for FWP in 2003, Andrews continued signing DNRC lands and then BLM parcels. Each summer he reviews a new BLM map from his region and identifies state and federal land next to roads built and

> "He'd stop and shoot the breeze, and we kind of developed a relationship. By the third day he was helping me out."

WELCOMING COMMITTEE OF ONE On a parcel of state school trust land 40 miles southeast of Miles City, FWP regional Information and Education Program manager Dwayne Andrews installs a recreational use boundary sign. "Now people know this land is here," he says.

maintained by the state or the county. He sends a list of the tracts to the Miles City BLM office and DNRC office for review. "They verify legal access to the parcels and make adjustments if there's been a land swap or some other change," Andrews says. The agencies write to the landowner who leases each property—known as a lessee for DNRC tracts and a permittee for BLM acres. "The letter notifies them that some time in the future the land will be signed," Andrew says. "We want to give everyone a head's up. No surprises."

For the rest of the year, squeezed in among his other responsibilities, Andrews posts the inconspicuous blue DNRC signs and tan BLM signs where county roads cut through public property. "It's usually not necessary to sign the entire parcel, because once people with a map see one sign they can figure out the boundaries," he says. "But on some big parcels, I've put up dozens and dozens of signs to mark the entire boundary."

After Andrews records GPS waypoints of the signs, he downloads the information at his FWP office for future reference and transfers the data to the other agencies so they have a record of sign locations.

Over the past ten years, Andrews estimates he has posted roughly 2,400 signs, identifying about 320,000 acres.

Chris Pileski, DNRC area manager in Miles City, says he appreciates the close cooperation between his office and FWP on the signing work. "We're short of staff, so the extra assistance we're getting from Dwayne is a big help," he says.

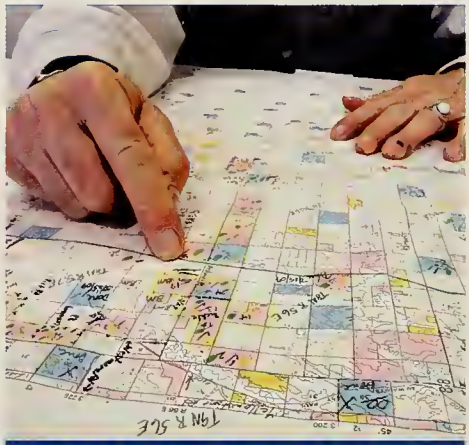
EVERYONE WINS

Others too are making public lands easier to find. Pileski says his agency signs "trouble spots" statewide where landowners adjacent to school trust lands have complained about trespass. In FWP's Glasgow region, regional Hunting Access Enhancement Program coordinator Mikey Nye and local BLM wildlife biologist John Carlson have put up signs indicating the boundaries of federally owned lands as part of programs developed between the two agencies. The Three Buttes Cooperative Access Project is 6,000-plus acres of mule deer and wild turkey habitat along the Missouri River near Culbertson. Another cooperative project, located in the Larb Hills, is composed of nearly 5,000 acres in southern Phillips County that contains

top-notch sharptail, pronghorn, mule deer, and elk hunting opportunities. In addition to the new boundary signs, the BLM lands in the project have boxes at parking areas containing detailed maps and GPS waypoints. "Everyone wins," Nye says. "The programs increase recreation on public land and reduce trespass on adjacent private land." Nye has recently begun an access project along the Milk River from Nashua to Havre and eventually hopes to sign more than 7,000 acres of public land there.

Reducing trespass is especially important for Dennis Hagenston of Billings. An FWP warden captain when he retired in 2003, Hagenston now works part-time for the department as a hunting access technician for the Block Management Program in fall and signs public lands in spring. "My years as a warden have helped me spot places where signs can solve potential problems," he says. "I can see where hunters might get confused, so I put signs in those spots to make that less likely."

Each of the three FWP signers takes a slightly different approach. After consulting DNRC staff, Hagenston focused first on signing accessible school trust lands in south-central Montana, then moved to signing BLM lands. Nye only signs lands that are part of projects that have additional objectives such as increasing deer and elk harvest to reduce depredation on neighboring croplands. Andrews, who calls himself an "equal opportunity signer," says he has tried to methodically cover almost every BLM and school trust property in southeastern Montana. "I don't pick the sites on physical characteristics. I just get out there on all the tracts we have approval to sign. Some of them might not appear to have much value for recreational use, like stubble fields or heavily grazed areas. But you never know. They could be used by antelope or geese," he says.



MAN ON A MISSION Above: A BLM map with Dwayne Andrews's detailed notes. Below: A decade's worth of data showing where he has signed 320,000 acres of public land.

Boundary indicators alone aren't enough, Andrews adds. Hunters and others must carry a compass or GPS along with accurate maps they know how to read. "The signs are only saying, 'Okay, the public land begins here,'" he says. "Then it's up to hunters to figure out where they are and how the land lays." Andrews avoids signing small quarter-section parcels because he thinks it's too easy for people to end up trespassing. "I don't sign anywhere where I think it would cause problems," he says. "We have to be respectful of landowners."

Landowners reciprocate. Hagenston says almost all lessees and permittees notified about signs have cooperated. "They know recreationists have legal access to this land if a county road bisects it." Andrews says landowners are coming around to the fact that they no longer control access to most school trust lands. "I can't say most of them are thrilled about the lands being signed. But the program has been in place for nearly two decades, so I think they are getting used to it," he says. "I had one landowner come out and watch me do the entire border of a big tract that abutted his property. He'd stop and shoot the breeze, and we kind of developed a relationship. By the third day he was helping me out."

Their biggest challenge now, say Andrews and Hagenston, is replacing old markers. Some people shoot the signs for fun, and cattle tip over signs while using them as scratching posts. The worst vandal is the harsh prairie sun. After a few years, signs fade and need to be replaced. "The moment you put one of these up, you create a potential maintenance problem," Andrews says as he tightens a nut to secure a new DNRC sign to its post. "I think about that every time I do this, because at some point I won't be around here to replace it."

Walking back to his truck, Andrews reflects on a decade of helping hunters and others discover land that was already theirs: "It's a good feeling to get outside and do something tangible, to know I'm doing something important that might not get done otherwise."

Tom Dickson is editor of Montana Outdoors.

HUNTERS: Take another look

Though many state and BLM sections appear devoid of game, it can be worth scouting even the grimmest-looking parcels. Two hunting buddies of mine regularly scour state and BLM sections and continually discover pockets of prime pheasant and mule deer cover. A few years ago, one of them shot three limits of roosters on a parched little state half-section that from the road looked like a moonscape. He'd taken the time to walk the perimeter and found, over a slight rise hidden from passersby, a lush spring-fed swale that attracted cock birds all fall. I'll bet hundreds of pheasant hunters drove by that parcel over the years and never gave it a moment's thought. —Tom Dickson

Greater Short-horned Lizard

Phrynosoma hernandesi By Ellen Horowitz

CAROL POLICH

When friends told me they'd seen greater short-horned lizards by the Sun River west of Augusta, I had to check out the spot. I was curious about the prehistoric-looking creatures. Could they really squirt blood from their eyes, as a Texas naturalist once informed me? What's more, because they are generally lizards of the open plains, most commonly found in southeastern Montana, this sighting just a few miles from Gibson Reservoir meant I didn't have to drive completely across the state to see one.

APPEARANCE

The greater short-horned is one of four lizards in Montana. Commonly called a horny toad or horned toad, it technically is not a toad (amphibian) but a lizard (reptile). The confusion is understandable. The greater short-horned lizard has a broad toadlike shape, and its scientific name, *Phrynosoma*, is Greek for "toad body."

The lizard has an oval, flattened body, a heart-shaped head (when viewed from above), a single row of light-colored scales along its sides, and small, hornlike projections near the back of its head. The lizards are only 2.5 to 3.5 inches long, with males smaller than females.

Even though my friends had told me almost exactly where to look for the little reptiles, finding one wasn't easy. Their body color varies widely, from tan-gray to reddish brown to olive green-gray. "They blend in spectacularly with the ground where they live," says greater short-horned lizard expert Jim Barron, associate professor of biology at Montana State University—Billings. Dark splotches, white spots, and abundant spines and scales enhance the animal's camouflage.

Ellen Horowitz is a writer in Columbia Falls.

HABITAT AND REPRODUCTION

Of the 13 horned lizard species in North America, the greater short-horned is the most widespread, ranging from southern Alberta to northern Mexico. It occurs east of the Rocky Mountain Front in dry, open habitat. Generally, the bleaker the natural landscape, the more likely you'll find greater short-horned lizards. In Montana, scientists have found them as high as 6,500 feet in the Pryor Mountains, on ridge crests between coulees, in sparse grass, and in sagebrush with sun-baked soil.

The lizards usually mate in early May shortly after emerging from their winter burrows. As the young grow inside her, the female becomes round in shape, "like a racquetball with legs," says Barron. By the time she gives birth to her ten or so young, anytime between late July and early August, her weight has doubled.

EAT OR BE EATEN

A greater short-horned lizard may not look appetizing to us, but it is tasty prey to snakes, raptors, ravens, foxes, coyotes, and other animals. In addition to its cryptic coloration, the lizard stays alive by staying still. That's also how it hunts. When an unsuspecting insect wanders close enough, the lizard strikes. The greater short-horned feeds on crickets, beetles, grasshoppers, and ants—especially the western harvester ant.

When spotted by a predator at close range, the lizard often responds by holding open its mouth or performing "pushups" from all four legs—behaviors known as threat postures. It can also inflate its lungs to puff up and enlarge its appearance, which makes a snake think twice about how far it wants to unhinge its jaws to devour dinner.

And what about that ocular blood squirting? Barron tells me that even though it's true many horned lizard species emit blood from their eyes during extreme stress, *Phrynosoma hernandesi* is not one of them.

THE FUTURE

My husband and I had spent two hours looking for the lizards before he spotted a skittering "rock" that abruptly stopped. He called me over. "Horned toad," he said. "Look by my left boot." It took me nearly a minute to locate the motionless form hidden against a backdrop of grayish brown earth and a few strands of prairie grass. The lizard never moved the whole time I watched it, even when I bent down to take photographs.

The greater short-horned lizard is listed as a Montana species "of concern" because its habitat is being altered. According to Barron, the loss of native prairie to agricultural conversion, overgrazing, and fire suppression is the major threat to this secretive little lizard.

PARTING SHOT

WHICH ROUTE? A hiker looks for the trail to Mount Aeneas, in the Flathead National Forest east of Kalispell. The 5.9-mile loop to the scenic peak and back is one of ten can't-miss day hikes we feature beginning on page 5. Photo by Becky Lomax.

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